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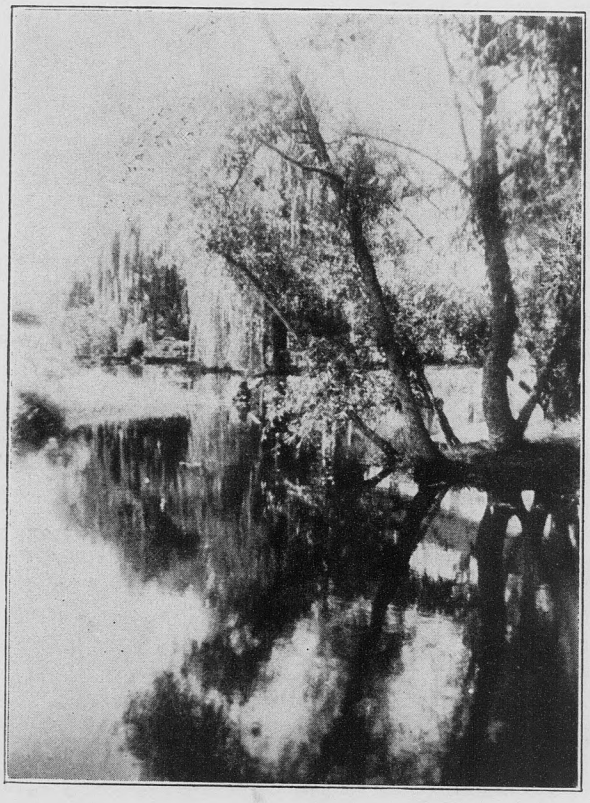
Maryland

1942 POULTRY YEARBOOK



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Maryland State Poultry Council

A Poultryman's Best Insurance--
PROTECTION
Against Tracheitis and Fowl Pox

You insure your own life, your home, your farm, your equipment from fire, flood and even cyclone. You pay for such insurance out of your income from your poultry business. WHAT THEN, if the loss of your flock through disease forces the cancellation of all insurance and perhaps the foreclosure of mortgages with resulting financial disaster!

Tracheitis, Fowl Pox and Pullorum Disease are a constant menace to unvaccinated and untested flocks, but—

90 MILLION BIRDS
Have Been Immunized within 9 Years with Vineland Poultry Laboratories Products
And no outbreak has ever been reported, where these Products have been used. This conclusively demonstrates that our Products give positive protection against losses from Tracheitis, Fowl Pox, and Pullorum Disease.

VINELAND
Chick-Embryo Egg-Propagated
PREVENTIVE VACCINES

are used by—
55% of the R. O. P. Breeders in the American Poultry Industry
50% of all Breeders in the Official Egg Laying Contests in the U. S. A.
74 State Institutions, and
ALL Co-operatives in the great commercial Poultry Districts

If it pays these leaders to vaccinate, certainly it will pay YOU, in protected profits and peace of mind. Don't wait for Tracheitis, Fowl Pox and Pullorum Disease to invade your immediate neighborhood. Birds vaccinated with Vineland Vaccines do not become "carriers" or transmit the disease. Therefore, vaccinate at once.

FREE Our 32-page Textbook of Poultry Disease Prevention, "Science Safeguards Your Flock Against Disease." Comprehensive, clear. Write for your copy today.

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VINELAND FOWL
LARYNGOTRACHEITIS VACCINE
Vacuum-Packed
For the Prevention of Fowl Laryngotracheitis Outbreaks

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This Registered Trade Mark of the Vineland Poultry Laboratories is on all labels and wrappers. None genuine without it.

Photo, Courtesy U.S. Dep't Agr.

Hen suffering from infectious laryngotracheitis finds breathing difficult

The Only Original Approved Vaccine

***Vineland* INFECTIOUS LARYNGOTRACHEITIS VACCINE**

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Vacuum-Packed
For the vaccination of layers that are in production to prevent the further spread of outbreaks of Pox, Canker and Sorehead.

VINELAND STAINED ANTIGEN
For the control and eradication of Pullorum Disease (B. W. D.) by the Whole Blood Rapid Method Test.

CAUTION—Always read the labels on the bottles when buying Vaccines. Carefully check the dosage and make sure that the Vaccine is made from eggs, and NOT from chickens. Vineland Chick Embryo Origin, Egg Propagated Vaccines are free from contamination of all transmissible poultry diseases, and dosages are adequate for effective and permanent immunization.

OUR SERVICE RECORD
Pioneers in Poultry Disease Prevention

1—FIRST Veterinarian in the United States to devote full time and attention to the study and treatment of poultry diseases.
2—FIRST Laboratory in the United States to manufacture only approved diagnostic and preventive agents.
3—FIRST Laboratory to obtain a permit from the United States Department of Agriculture to manufacture Laryngotracheitis Vaccine.
4—FIRST Laboratory to obtain a permit from the United States Department of Agriculture to manufacture Egg-Propagated Laryngotracheitis, Fowl Pox, and Pigeon Pox Vaccines.
5—FIRST Laboratory to seal Tracheitis Vaccine in vacuum.
6—FIRST and ONLY Laboratory to seal Fowl Pox and Pigeon Pox Vaccines in vacuum.

Our Vaccines are produced under U. S. Veterinary License No. 196, issued by the U. S. Dept. of Agriculture

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The 1942 MARYLAND *Poultry* YEARBOOK

Published by

The Maryland State Poultry Council

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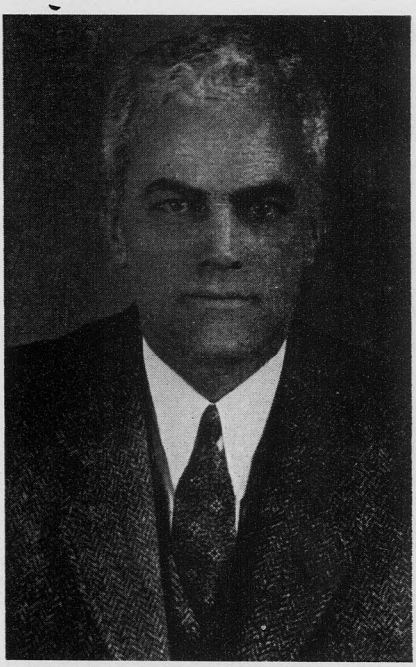
Greetings

To The Poultry People Of Maryland



H. C. BYRD

It is a pleasure for me as President of the University of Maryland to extend greetings to the poultry people of Maryland through the 1942 Yearbook of the Maryland Poultry Council.

In publishing this yearbook, in which is assembled information of considerable value to producers, the Council is rendering a valuable service. To the Council also is due great credit for many other services it renders the industry. As a matter of fact, to a considerable extent the present status of the industry is due to the leadership assumed by the Council in solving many problems.

I hope that poultry producers and others associated with the industry will cooperate in every way possible to improve conditions. At all times the University is anxious to be of the greatest possible help. Staff members are carrying on research, extension, teaching, and administrative work tending to promote the industry. This work should increase in value from year to year.

Since the poultry industry has been called upon to play such an important role in the national defense program, it is anticipated that 1942 will be a favorable year. May conditions continue to improve.

DR. H. C. BYRD

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To the Members of the Poultry Council and Poultry Producers in Maryland

T. B. SYMONS

I am pleased to extend congratulations on the wonderful progress made by the poultry industry in this State the last few years. The strong force of able workers in our Poultry Department at the University of Maryland, backed by enthusiastic support of all branches of the industry in the State, make the outlook for the industry in the State very encouraging. We are fortunate to be in position to meet the needs of the nation in this critical period by producing an increase of eggs and poultry meat to aid in defense measures. The poultrymen are a loyal body of citizens, willing at all times to make sacrifice for a great cause.

We are now called upon to increase production not only to meet domestic needs, but the needs of England and other allied countries. The Secretary of Agriculture has called upon the Maryland poultry industry to increase its production of eggs 7 per cent, and the number of chickens raised 14%. I have every confidence that the State will more than meet this goal. Our Specialists and County Agents will be at the call of any and all producers to assist them in technical problems of production and breeding.

We have made commendable progress these last few years in the control of disease. We must make greater effort in the future to improve our breeding stock so that we can supply eggs to our large hatcherymen who are now forced to go elsewhere for their hatchery eggs. This presents a challenge to our workers here at the Institution. Hand in hand we will go forward in promoting an industry that reaches more people perhaps than any other and which furnishes reasonable return for labor and capital invested.

May this yearbook be a means of further stimulating our growing interest in the poultry industry in Maryland.

DR. T. B. SYMONS
Dean College of Agriculture
and
Director of Extension

The Maryland State Poultry Council

What it is:

The Maryland State Poultry Council is a federated group of delegate representatives of the various poultry organizations in Maryland. This group is comprised of 1 director and 2 voting delegates from each organization affiliated with the Council. These all have voting powers at the Annual (winter) and Semi-Annual (summer) meetings of the Council.

The Directors (one from each affiliated organization) conduct the general business of the Council outside of the annual and semi-annual meetings. They meet upon call of the President. The Executive Committee consisting of the elected officers transact emergency business of the Council in accordance with its established policies.

All poultry organizations in Maryland are eligible for affiliation and the Council meetings are open to the public.

Why the Council exists:

The problems confronting poultrymen from time to time are usually industry-wide, rather than individual in nature. Disease, marketing, legislation, feeding, breeding, and numerous other problems affect all poultry producers. Individual or small group action on such problems is hopeless as to real progress. Only by a united industry effort can material progress on such problems be expected. To provide a means of a united industry effort on the problems of the industry is the real reason for existence of the Council.

What the Council is striving to do:

Newer knowledge of Breeding, Nutrition, Disease, Control, Marketing, Legislation, and other fields which are often of great importance to the industry is becoming available almost constantly. Through the educational meetings sponsored by the Council, these new developments are often first presented to the public.

Commodity group action such as turkey producers, broiler producers, hatcherymen, egg producers, on marketing, disease, legislation, or other problems is sponsored by the Council in dealing with commodity problems.

The Council has been active in cooperation with the NEPPCO, IBCA, and other industry groups on varied problems affecting all poultry producers as well as consumers.

What the Council means to you:

Whether you are a consumer, producer, or both, the Council's work on the Fresh Egg Law, Inedible Egg Law, Marketing work, Consumer Information, and numerous other fields of work affects your interests. By the elimination of waste through more efficient methods of production, marketing, processing, and merchandizing, for which the Council is constantly working, the public in general benefits.

To the Poultry Interests of Maryland

R. B. CORBETT

The Federal Government has requested poultrymen to increase the production of both eggs and poultry meat. It is the considered judgment of most leaders in the poultry industry that these increases in production should be made without expansion of overhead costs. This means that we will need more eggs per bird, and more rapid and efficient production of poultry meat. The only alternative is to increase the number of poultry houses, and the number of poultry farms, thus expanding the investment in the poultry business.

The importance of research in this connection cannot be overemphasized. The research work of the Poultry Department which is a part of the program of the Maryland Agricultural Experiment Station, is emphasizing the breeding of better strains of birds. It is hoped that faster growing, more vigorous stock will be made available to the poultry producers in the near future. Such strains offer the possibility of reducing the costs of production, and increasing the quantity of production without necessitating an increase in overhead. The Department is working on nutritional problems which will tend to help the vigor of the growing birds and reduce the costs of feed. While this work was important under normal conditions, it has become a necessity if poultrymen are to meet the requests of the Government, and at the same time not go into an expansion which will lead to an economic aftermath that will be disastrous to all.

The Experiment Station is anxious to have the benefit of the counsel of all practical poultrymen so as to keep the work closely in touch with their problems. Every poultryman in the State of Maryland is invited to make suggestions as to how the poultry research work can be made of the greatest value to the poultry industry of the State and the Nation.

DR. R. B. CORBETT
Director Maryland Experiment Station

Announcing

PURINA'S

BALANCED INCOME PLAN

"Most of us poultry raisers have been following a plan that's just plain cock-eyed!" These are the words of a sound, level-headed poultry raiser after he had studied the new Purina Balanced Income Plan and compared it to the plan he had been following for a good many years.

"Through habit, more than anything else, I had been raising only one brood of chicks a year, starting them in the spring. And, by the way this was the time of year when my poultry income was lowest—when it was hardest to put up the money to get a brood started. By starting all of my chicks at one time, much of my equipment was idle almost the entire year. My labor was unevenly distributed. The cockerels and culls were ready to go to market when meat prices were usually lowest."

Now, here are the advantages when Purina's Balanced Income Plan is followed —when 3 or 4 broods are raised each year, starting them in different seasons:

(1) You get plenty of eggs during the fall and winter months when egg prices are highest.
(2) Income from year-round sales of eggs, cockerels, and culls help pay for growing replacements.
(3) More birds can be raised with the same equipment. This lowers the cost of production.
(4) You have eggs for your customers the year-round.
(5) Feed bills are distributed throughout the year.
(6) Labor is more evenly distributed, eliminating extra labor costs during spring months.

The Balanced Income Plan is practical. Ten years of work at the Purina Experimental Farm and among private poultry raisers have proved without a doubt that chicks started at other times during the year can be **just** as profitable as spring chicks.

You can enjoy the benefits that are mentioned above by starting a brood of chicks this fall. A brood started in October or November fits in well with the spring brood started in April or May.

We invite you to write to Purina Mills, St. Louis, Missouri, for the 48-page Purina Poultry Book. This book fully explains the Balanced Income Plan and gives detailed information on how you can apply it to your own poultry enterprise. It is free. Write for your copy today.

PURINA MILLS

St. Louis, Mo. Buffalo, N. Y.
Wilmington, Del.

Poultry and the Future Farmers of America In the Departments of Vocational Agriculture In the High Schools of Maryland

H F. COTTERMAN

The poultry enterprise holds a very important place in the Future Farmers of America and Vocational Agriculture in the high schools in Maryland. In every community in the State, poultry is found on almost every farm. Poultry is one of the first enterprises to be taught in class because (1) it is of a nature that can be understood by beginning pupils, (2) it offers ready opportunity for all to get experience through home projects, (3) the returns can be used at home as food for family subsistence, and (4) it is so widespread in our State.

Group projects of local chapters of F. F. A. have been increasing rapidly in the State. The nature of poultry, especially broiler raising, adapts itself to this type of activity and many chapters have poultry as their group project. This offers an opportunity for the boys to get experience in brooding, feeding, care and management, and marketing practices. It also teaches cooperation, provides a medium for experiments, and adds funds to the chapter treasuries. School officials, local poultry groups and commercial feed companies cooperate in these projects wholeheartedly, often to the extent of donating materials.

It is in the individual projects, however, that poultry plays its most important part in F. F. A. work. Many boys choose this enterprise as their major line in which to get practical work experience. In 1939-40, the last year for which complete figures are available, there were approximately 285 boys who carried on poultry projects in the State. These projects embraced in round numbers 38,800 birds, and produced a labor income of $12,750.

Most of these projects were with chickens, but a few were with turkeys, ducks, guineas and geese. In addition to these projects, much work was done by individuals to improve their home flocks and increase the family income. The families of F. F. A. members no doubt benefited to an amount equally as great or greater than that represented by the actual projects.

Every Spring a poultry contest is held in connection with the Vocational Field Day at the University of Maryland, along with several other contests. The winning team is sent to the Northeastern Regional Contests at Springfield, Massachusetts, the following Fall. In 1940 the team composed of Marvin Lucas, of the Millersville Chapter, Roger Reedy of the Jarrettsville Chapter, and Otho Mariner of the Snow Hill Chapter (alternate) won first place at Springfield. They were rewarded with a trip to Kansas City, where they took part in the National Contest and placed fifth. Mr. Abram Z. Gottwalls, former instructor of vocational agriculture and adviser to the Millersville Chapter was coach of this team.

DR. H. F. COTTERMAN
Supervisor of Agriculture

SAM RICE'S

(Specializing)

STRAIGHT NEW HAMPSHIRE DAY-OLD CHICKS

also

HATCHING EGGS

Order Now

Write for Price List

SATISFACTION GUARANTEED

SAM RICE'S POULTRY FARM & HATCHERY

ASHTON, MD. *Phone: Ashton 2411*

Beacon Steel Products Company

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"Bestof All" Poultry Equipment

Maryland Made and Tested

BROODERS
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The World's Largest Manufacturer of Thermostat Wafers

Visit Our Factory and Let Us Show You the New 1942 Equipment

Manchester Road

Westminster, Md. **Phone 460**

"BRING SCOTT YOUR POULTRY PROBLEMS"

Maryland Poultry Data 1939

Dozens of Eggs Produced	22,780,919
Number of Chickens Raised	11,923,718
Number of Turkeys Raised	340,442

Maryland Poultry Data 1940

Number of Layers on Hand April 1	3,139,761
Number of Turkeys on Hand April 1	51,602
Number of Ducks on Hand April 1	41,649
Number of Geese on Hand April 1	4,081

Edible Meat in Fattened and Unfattened Chickens

In the following table data are given on the per cent of blood and feathers and the per cent of head, feet, bone, and viscera of the live weight of unfattened and fattened birds belonging to different classes. The table also gives the per cent dressed of live weight, the per cent edible meat of dressed weight, and the per cent edible meat of live weight, as well as the amount of edible meat in each live weight class.

Approximate Proportions of Inedible and Edible Parts of Different Classes of Unfattened and Fattened Birds:

CLASS	Average live weight, pounds	INEDIBLE			EDIBLE		
		Per cent blood & feathers of live weight	Per cent head, feet, bone & viscera of live weight	Per cent dressed weight of live weight	Per cent edible meat of dressed weight	Per cent edible meat of live weight	Average amount edible meat, pounds
Unfattened Broilers	2½	12	40	88	54	48	1-1/5
Fattened Broilers	2¾	9	36	91	61	55	1-1/2
Unfattened Roasters	4½	11	38	89	57	51	2-1/4
Fattened Roasters	6¼	8	34	92	63	58	3-3/5
Fattened Capons	7¾	8	30	92	67	62	4-3/4
Fattened Hens	5¾	8	33	92	64	59	3-2/5

The data in this table show clearly that fattening poultry produces more edible meat per pound of live weight and that capons and roasters have more edible meat per pound of live weight than broilers.

CHRISTIE'S *New Hampshires* *Burst Forth Full of* SPIZZERINKTUM

The World's
Largest Breeding Flock of New Hampshires

40,000 Breeders
All N. H.-U. S. Pullorum Clean

America's
Most Famous Foundation Strain
Bred for Fast Growth, Complete Feathering, Early Maturity, Heavy Production, Bigger and Better Brown Eggs, Long Life and Lowest Mortality

SPIZZERINKTUM CHICKS Will Help You Reach Defense Production Quotas

SPIZZERINKTUM is made up of three equal parts of those priceless essences—Vim, Vigor and Vitality. All three abound in Christie's chicks. Nothing can stop them provided they receive the good care and intelligent treatment that every good, healthy chick has a right to demand.

CHRISTIE'S HATCHING EGGS Will Give You

Husky, Healthy Spizzerinktum Chicks

All our own Incubator Eggs and all eggs sold for hatching are electrically graded and candled. Customers tell us that they are the finest they receive, large, well-shaped and uniform in color.

Straight NEW HAMPSHIRES for Egg and Meat Production

A large proportion of the country's New Hampshire breeding flocks trace their foundation stock to the Christie **SPIZZERINKTUM** strain. Build your own future on the same foundation.

Straight BARRED PLYMOUTH ROCKS for Egg and Meat Production

Our Barred Rocks are as rigorously culled as our New Hampshires, and are reared and bred in precisely the same way. They too have plenty of **SPIZZERINKTUM.**

CHRIS-CROSS HYBRIDS FOR BARRED Broilers and Roasters

The Ideal Barred Hybrid, produced from Christie's own foundation flock of Barred Rocks, for the male line, mated with selected **Spizzerinktum** New Hampshire hens.

Hatches Every Week the Year Around

Order early as I shall certainly be sold out months ahead on spring deliveries. Write today for Free Catalog and latest Price List.

ANDREW CHRISTIE

BOX 56
KINGSTON, N. H.

Correcting Unsatisfactory Conditions in Incubation

Unsatisfactory conditions during incubation may be due to low quality hatching eggs from inferior breeding stock, improperly balanced diets given the breeding stock, improper management of the incubator, or a combination of all three factors.

Some of the causes of the more important unsatisfactory conditions of incubation resulting from improper incubator management are given here in order that the incubator operator may correct the trouble as soon as possible.

1. Excessive number of "blood rings" may be due to excessive chilling of eggs prior to incubation or too high a temperature during the first few days of incubation.

2. Excessive number of dead embryos between the tenth and eighteenth days of incubation may be due to lack of sufficient ventilation or uneven temperatures.

3. Excessive number of fully developed dead embryos that fail to pip the shell may be due to insufficient turning of eggs or faulty temperatures.

4. Excessive number of fully developed dead embryos that pip the shell but fail to emerge may be due to too low or too high a temperature or too little humidity at hatching time.

5. Excessive number of cases where the shell sticks to the chick may be due to insufficient humidity at hatching time.

6. Excessive number of "sticky" and "soft" chicks may be due to too low a temperature or too high humidity.

7. Excessive number of chicks with incompletely healed vents may be due to too low humidity, excessively high temperature, or wide fluctuations in temperature.

8. Hatching too early is usually due to excessively high temperature.

9. Uneven hatching is usually due to fluctuations in temperature.

10. Delayed hatching is usually due to excessively low temperature.

11. Excessive number of small chicks may be due to setting small eggs, too low humidity, too high temperature, or all three. At hatching time chicks should weigh at least 8 pounds per 100 chicks.—M. A. JULL, *University of Maryland.*

Write to the University of Maryland for a list of hatcheries that are cooperating with the Maryland Poultry Improvement Board in carrying on breed improvement, flock selection, and pullorum testing work officially.

HASTINGS CHICKS

U. S.-Md. Approved and Pullorum Tested

- **New Hampshire Reds**
- **Barred Plymouth Rocks**
- **S. C. White Leghorns**
- **Barred Cross**

Write for Catalogue

HASTINGS HATCHERY

PARSONSBURG, MARYLAND

Capacity 1,000,000 Eggs

Practical FEEDERS

make a practical

PROFIT

on their feeding investment. That's

why they like D & G

A FEED FOR EVERY NEED

No Premium Prices

WEAR-O-SAX

Useful Colored Cotton Bags

Sold by Practical Feedmen

DIETRICH & GAMBRILL

INC.

FREDERICK, MD.

Relation of Egg Cost To Hatchability

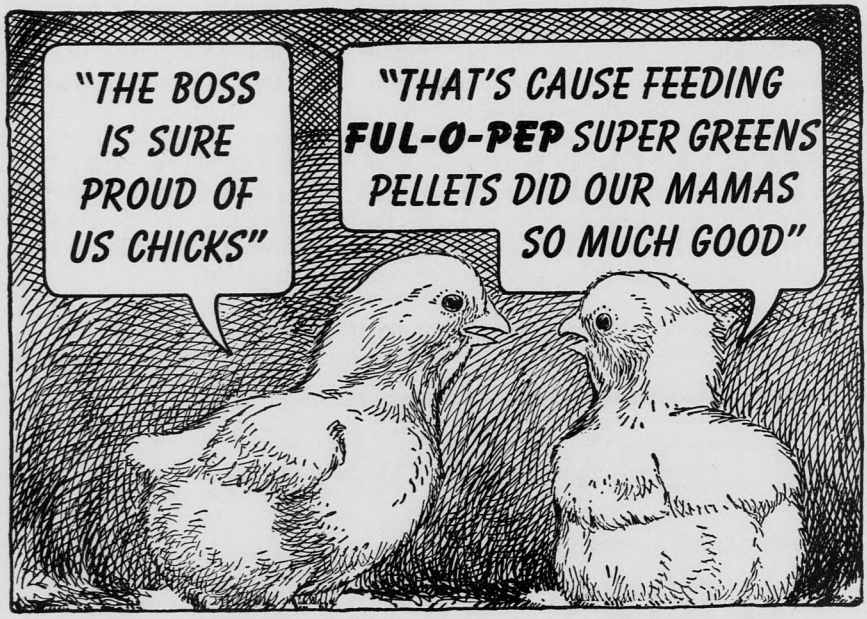
The real cost of eggs for hatching purposes is based upon the value of the quantity of eggs necessary to hatch a given quantity of chicks. The influence of hatchability of eggs upon the cost of the eggs utilized in hatching 100 chicks may be illustrated by the following example: If the price of eggs is 36 cents per dozen and the hatchability is 75 per cent, then the cost of the 133 eggs necessary to hatch 100 chicks will be $4.00, but if the hatchability is only 60 per cent then the cost of the 166 eggs necessary to hatch 100 chicks will be $5.00. The 15 per cent difference in hatchability of eggs at that particular price reflects a difference of $1 per 100 chicks hatched and increases the cost of hatching day-old baby chicks 1 per cent per chick. As the per cent of hatchability increases, the cost of eggs necessary to hatch 100 chicks increases at an inverse rate with each increase in the price of eggs per dozen. The difference in the cost of eggs influenced by hatchability increases proportionately as the price of eggs increases. The production of good hatchable eggs by breeders will enable the hatcherymen to sell chicks to poultrymen at a lower price and at the same time receive a fair profit for his work. The following table by Prof. P. R. Poffenberger and Dr. S. H. DeVault of the Maryland Agricultural Experiment Station shows the calculated egg cost per 100 chicks at a given price and the per cent of hatchability.

COST OF EGGS NECESSARY TO HATCH 100 CHICKS

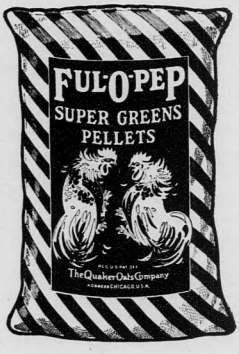
Cost Per Dozen Eggs (cents)	Per Cent of Hatchability						
	55	60	65	70	75	80	85
	Cost of Eggs Per 100 Chicks Hatched						
25	$3.78	$3.47	$3.20	$2.98	$2.78	$2.60	$2.45
26	3.93	3.61	3.33	3.09	2.89	2.71	2.55
27	4.09	3.75	3.46	3.21	3.00	2.81	2.65
28	4.24	3.87	3.59	3.33	3.11	2.91	2.74
29	4.39	4.03	3.71	3.45	3.22	3.02	2.84
30	4.54	4.16	3.84	3.57	3.33	3.12	2.94
31	4.69	4.30	3.97	3.69	3.44	3.23	3.04
32	4.84	4.44	4.10	3.81	3.55	3.33	3.14
33	5.00	4.58	4.23	3.93	3.67	3.44	3.23
34	5.15	4.72	4.36	4.05	3.78	3.54	3.33
35	5.30	4.86	4.48	4.16	3.89	3.64	3.43
36	5.45	5.00	4.61	4.28	4.00	3.75	3.53
37	5.60	5.14	4.74	4.40	4.11	3.85	3.63
38	5.75	5.27	4.87	4.52	4.22	3.96	3.72
39	5.90	5.41	5.00	4.64	4.33	4.06	3.82
40	6.06	5.55	5.12	4.76	4.44	4.16	3.92
41	6.21	5.69	5.25	4.88	4.55	4.27	4.02
42	6.36	5.83	5.38	5.00	4.67	4.37	4.12
43	6.51	5.97	5.51	5.12	4.78	4.48	4.21
44	6.66	6.11	5.64	5.24	4.89	4.58	4.31
45	6.81	6.25	5.76	5.36	5.00	4.68	4.41
46	6.96	6.38	5.89	5.47	5.11	4.79	4.51
47	7.12	6.52	6.02	5.59	5.22	4.89	4.61
48	7.27	6.66	6.15	5.71	5.33	5.00	4.70
49	7.42	6.80	6.28	5.83	5.44	5.10	4.80
50	7.57	6.94	6.41	5.95	5.55	5.20	4.90

Feed Breeder Birds this Vitamin-Boost to Help Get Better Chicks in 1942!

Ful-O-Pep Super Greens Pellets fortify breeders with vitamins to promote hatchability and livability of chicks!



HERE'S how to help get the best chicks you've ever had in 1942! Feed your breeders now with Ful-O-Pep Super Greens Pellets as a supplement to regular feed. These pellets provide a precious vitamin-boost for better quality hatching eggs, and livable, healthy chicks. Helps breeders produce chicks with the deep yellow-colored shanks indicating good health. For complete details write



THE QUAKER OATS COMPANY • CHICAGO, ILL.

Buy Better Chicks Early

IT'S THE MOST LOGICAL WAY TO INCREASE EGG PRODUCTION

By Dr. M. A. Jull, *University of Maryland*

All flock owners would like to make more profit in egg production but many of them don't want to work too hard for it. Strange as it may seem, if the war lasts another year or two there ought to be good money in egg production during 1942 and 1943. Flock owners who want to make the greatest profits out of their 1942-3 laying flocks should make plans *now* to secure the kind of stock next spring that will give the best results.

The world war has already taught us some valuable lessons. Progressive poultrymen have already learned at least two lessons: (1) costs of production have increased and probably will continue to increase, and (2) efficient laying strains are absolutely necessary to make greatest profits in production. The need for more efficient production is the outstanding challenge that faces every poultryman today.

Demand For Increased Production

Another challenge facing the poultry industry is the urgent need for increased egg production. Secretary Wickard has stated recently that 10 per cent more chickens should be raised in 1942 than in 1941 and that 10 per cent more eggs should be produced in 1942 than in 1941. If these goals are attained, the increase in chickens raised will amount to about 16 per cent more than the annual average from 1936 to 1940 and about 18 per cent increase in egg production over the annual average from 1936 to 1940.

What is the most logical way to increase egg production, *more* layers or *better* layers? Of course, if more chickens are raised in 1942 than in 1941, there are bound to be more pullets raised and saved for egg production for the 1942-1943 laying season, providing the feed-egg ratio is favorable in the fall of 1942. The most logical way for flock owners to increase egg production in the most profitable way to themselves is to keep *better* layers rather than *more* layers. As a matter of fact, the higher the price of feed in relation to the price of eggs, the greater the need for keeping layers that will transform feed into eggs as efficiently as possible.

One example of the high cost to producers of inefficiency in egg production may be taken from the report of K. T. Wright, Farm Management Department, Michigan State College of Agriculture. Based upon the results of his survey, he estimates that probably 70 per cent of the 11 million hens in Michigan produced an average of 85 eggs per bird or 20 cents per bird less than enough to pay for feed, labor and other expenses involved in producing eggs. This represents a loss of 1½ million dollars annually because of the inefficiency of 8 million low-producing hens.

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Reflect for a moment what it means to run a business continuously for 115 years . . . through many panics . . . depressions . . . and wars, without going on the rocks at any time. Luck and good fortune have been with us . . . we have always had very capable and broadminded business men at the head of our organization, and today, our house is capably managed by the second and third generations of the Hunters' and Waltons', with the assistance of other partners, bright and active young men who were formerly employees of the firm. We have always been fortunate in having loyal and capable employees, and perhaps we hold the record for employee permanence.

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White Leghorns ***Pullorum Passed***

Real Economy this year lies in the quality of chicks purchased. R. O. P. chicks and breeding stock are of the highest quality.

R. O. P. Chicks, Hatching Eggs, and Breeding Stock for Sale at All Times.

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In many states the percentage of inefficient hens is higher than in Michigan. The relative inefficiency of such a high proportion of the flocks of the country, both in egg and poultry meat production, is one of the major problems facing the industry. Inefficiency in the utilization of feed, the cost of which usually represents over one-half of the cost of producing eggs and poultry meat, is accounted for largely by poor breeding, improperly balanced diets, or mismanagement or a combination of these factors.

Buy Those Extra Chicks Early

Many farmers and commercial poultrymen are making plans now to buy *more* chicks in the spring of 1942. Most of them ought to be planning to buy *better* chicks than they have ever bought before.

But since more chicks probably will be hatched in 1942, let's see when those extra chicks should be bought. In 1941 the U. S. Government request for increased egg production was made public relatively late in the hatching season so that many late-hatched chicks were bought. Now it is an established fact that late-hatched chicks do not grow as fast as early-hatched chicks. Moreover, late-hatched chicks are liable to suffer greater mortality than early-hatched chicks.

Another factor in favor of early-hatched chicks is that the pullets start to lay earlier in the fall than late-hatched chicks. This is very important because of the higher price of eggs in the late summer and early fall as compared with other seasons of the year. The average farm price in cents per dozen during 1940 was as follows:

July	16.4	January	18.3
August	17.2	February	20.2
September	21.0	March	15.4
October	22.9	April	15.0
November	25.8	May	15.1
December	20.5	June	14.4

It has been shown repeatedly that the number of eggs laid during the late summer and fall months is one of the most important factors in determining the profits from the flock.

Farmers and commercial poultrymen should plan on buying their chicks early in the season, especially the extra ones. Buy February and early March chicks rather than late May and June chicks.

Good Chicks a Good Investment

Besides buying chicks early in the season, it is very important to buy good quality chicks from well bred stock.

Chicks should be secured from breeder hatchery operators or commercial hatchery operators who are carrying on a sound breeding program to develop high laying strains. A few cents more per chick for chicks of superior quality will prove to be a mighty good investment. Chicks of good quality nearly always suffer less mortality than chicks of poor quality and they grow faster, start to lay earlier, and lay better.

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Tried, Tested and Acclaimed by Our Customers from Coast to Coast to be One of the Best Strains

OUTSTANDING QUALITIES:

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Early, Full Feathering
High Average Egg Production
Freedom from Pullorum
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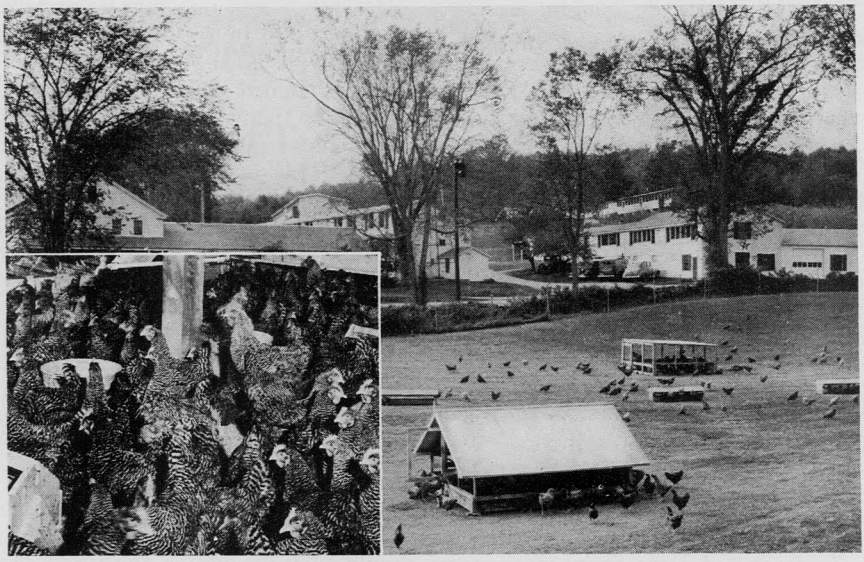
Early Maturity
Large Egg Size



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Whether you raise broilers or produce eggs it will pay YOU to find out more about our

Barred Plymouth Rocks

A CATALOGUE WILL BE SENT YOU UPON REQUEST

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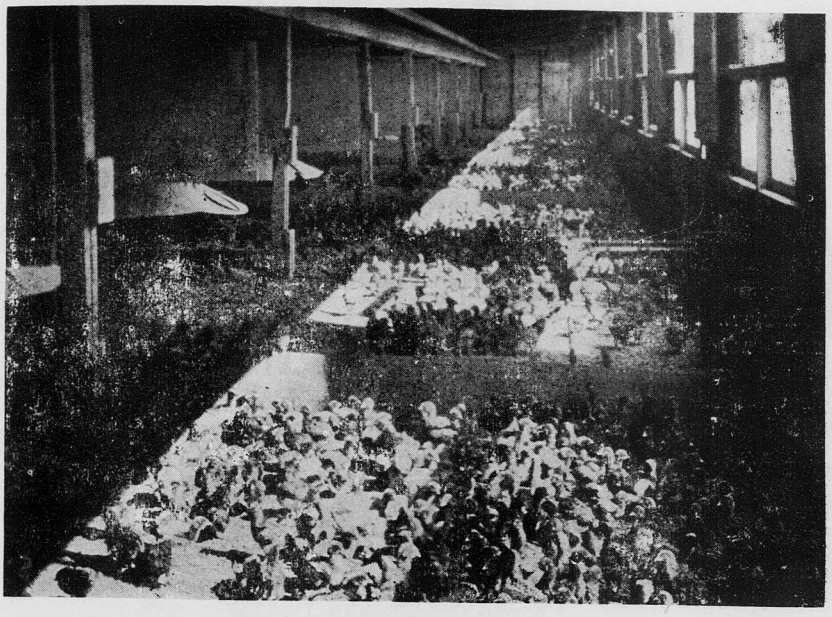
Box 100, Raymond, N. H.

We don't say we have the best—Our customers say that



Several million broilers are produced in Maryland every year. Most of the broilers are crossbreds from matings of Barred Plymouth Rock males mated to New Hampshire females. Under average conditions, crossbred chickens utilize feed relatively more efficiently than purebreds.

The Evils of Overcrowding in Brooding

There are three outstanding evils resulting from overcrowding chicks during the brooding season: (1) retarded growth; (2) increased cannibalism; (3) higher mortality.

In the Western Indiana commercial-broiler section, Prof. E. C. Young of the Indiana Experiment Station observed that as the number of chicks started per brooder increased the per cent mortality also increased.

Number of Chicks Started Per Brooder.....	250 or less	251-349	350-449	450 or more
Per Cent Mortality Up to 12 to 13 Weeks.....	5.1	11.0	15.3	19.1

These results show quite conclusively that overcrowding during brooding tends to increase mortality. A safe rule for farm flock owners to follow is to put not over 250 chicks per brooder. Chick raisers should appreciate the fact that there is a natural tendency for brooder manufacturers to overrate the brooders they offer for sale.

During the first week of brooding the temperature under the hover should be about 95 to 97 degrees and it should be reduced slightly each week, depending upon the season, until the chicks are able to do without heat. An even temperature is desirable and care should be taken to see that the chicks are comfortable at night.

A Complete Line Of PHARMACEUTICAL BIOLOGICS *and* REMEDIES

We could say a lot about what our products will do . . . or a lot about our scientific laboratories . . . or a lot about our organization . . .

But what you, as a poultry raiser, want are products that render real service at a price that you can afford to pay without endangering your profits.

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Pullorum Antigen
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(Chicken Formula)
Mixed Bacterin Avian
(Turkey Formula)
Pasteurella Avic'da Bacterin
(Fowl Cholera)
Avisepticus-gallinarum Bacterin
(Fowl Typhoid)
Fowl Pox Vaccine
Fowl Pox Vaccine (Pigeon Strain)
Gallinarum-typhimurium Bacterin
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LARGE ROUND WORMR POWDER
(For flock treatment, for Large Round Worms)
LARGE ROUND WORMR CAPSULES
(For individual treatment)
for Large, Round Worms
SPRAYR
(for respiratory Troubles)
REVENGE LICE DESTROYER
(Kills all kinds of Lice that stay on poultry)
REVENGE LITTER SPRAY
(for spraying Litter and Poultry Houses
PICKR
(for cannibalism)

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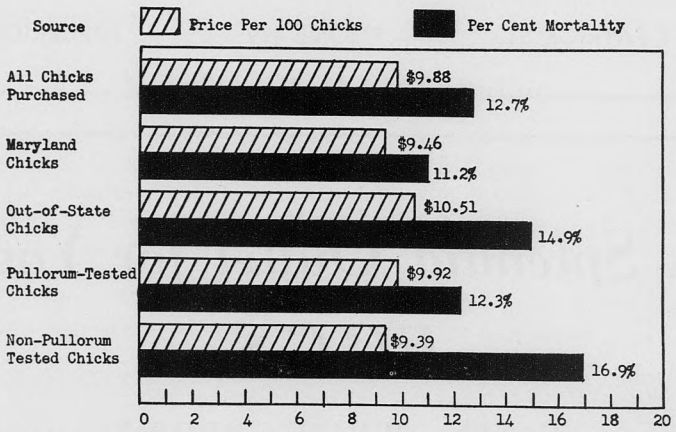
It Pays to Pullorum Test the Breeding Stock

A brood of chicks infected with pullorum disease often suffers high mortality. Pullorum testing the breeding stock and removing the reactors promptly usually results in decreased mortality among the chicks produced by the breeding flock. The pullorum test should be conducted under the direct supervision of the State Live Stock Sanitary Service. The reactors should be removed as soon as they are detected and the premises should be thoroughly cleaned.

Every flock in Maryland used for producing hatching eggs should be tested.

The incubators should be properly disinfected in order to prevent the possible spread of pullorum disease at hatching time.

Pullorum testing and pedigree work are regarded as the best indicators of quality to the average poultryman. All poultrymen should attempt to secure the best quality chicks possible within their financial means which can only be accomplished by purchasing chicks from reputable hatcherymen.



Source, Price and Mortality of Chicks Purchased by Maryland Poultrymen

This figure shows the price paid and the mortality of chicks purchased from various sources.

Farmers and commercial poultrymen who intend to purchase chicks in 1942 should secure early-hatched chicks from hatchery operators who carry on a sound breeding and pullorum testing program.

A list of Maryland hatchery operators carrying on their selection and testing work according to the provisions of the Maryland Poultry Improvement Plan may be secured by writing the Poultry Department of the University of Maryland, College Park, Md.

Good Chicks From Well Breeders

Maryland-U. S. Approved Blood-Tested Chicks

Barred Rocks, White Rocks, New Hampshires, R. I. Reds, White Leghorns,
Barred Rock-New Hampshire Cross

Officially Blood-tested for Pullorum Disease by the Tube Agglutination Method Under Supervision of the Maryland Poultry Certification Board

Write for Catalogue and Prices

Maryland Chick Hatchery, Inc.

C. R. HOLLAND, Manager

36 EAST PATRICK ST. PHONE 439 FREDERICK, MD.

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FANCY – WHITE – BROWN

BROAD BROTHERS

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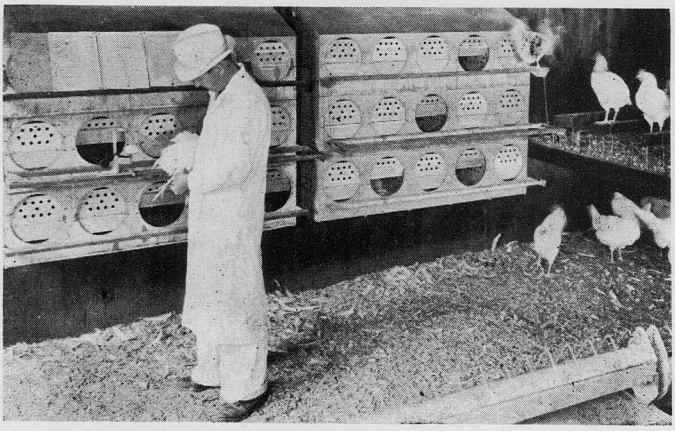
The ration for growing chickens should be made up of ground grains of good quality and should contain about 21 per cent protein in order to promote rapid growth during the first few weeks. In case of pullets raised for laying purposes, the protein content of the ration may be reduced to about 18 per cent at about 6 weeks of age and about 16 per cent at about 12 weeks of age. Rations for growing chickens must be properly balanced with respect to various vitamins and minerals to promote proper growth and avoid certain nutritional diseases. (Photo by U.S.D.A.)

Maryland R. O. P. Breeding

Several Maryland poultry breeders are carrying on record of performance (R. O. P.) work under the provisions of the Maryland Poultry Improvement Plan. Careful trapnest records are kept and the breeding stock is selected on the performance of the progeny. Mr. Charles S. Williams, Extension Poultry Specialist of the University of Maryland serves as inspector of the records of egg production and weight and approves the males and females that qualify as R. O. P. males and females. R. O. P. breeding stock makes good foundation stock for hatchery flocks that are used for producing eggs for hatcheries.



Mr. Charles S. Williams, University of Maryland Poultry Extension Specialist trapnesting R. O. P. candidates in a R. O. P. breeder's flock.

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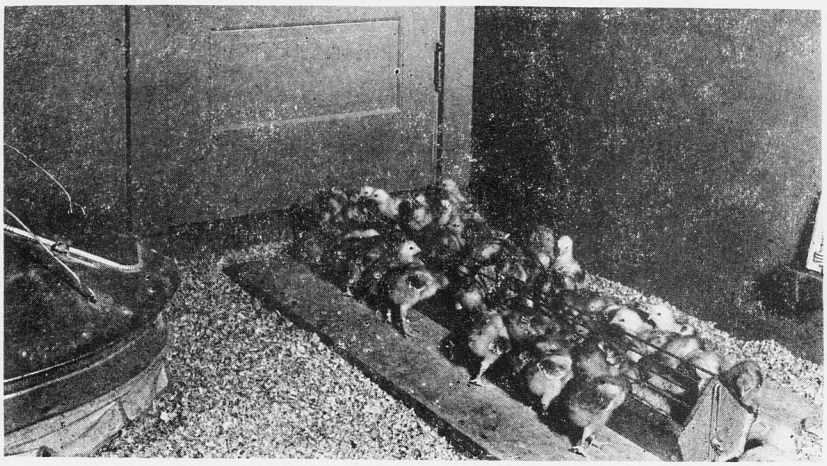

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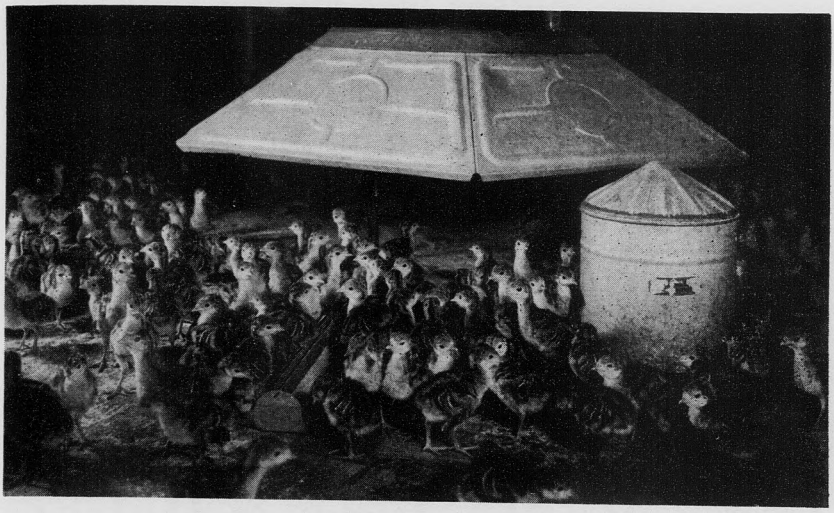
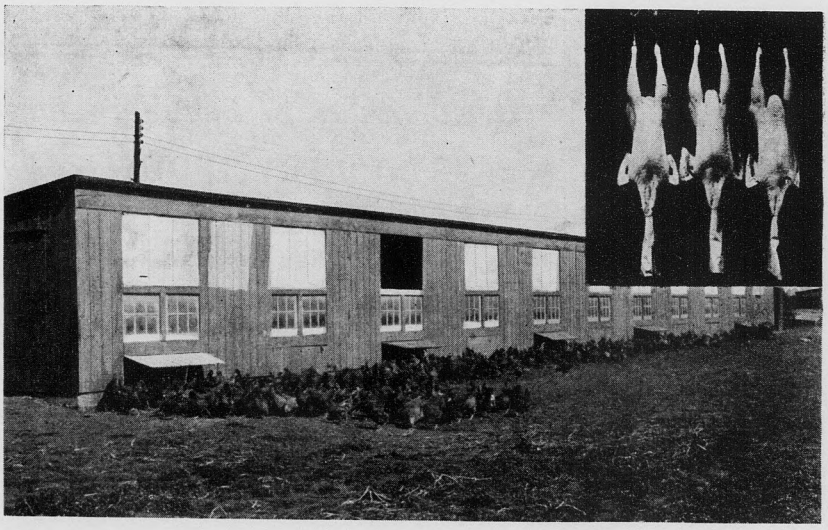


Good brooding equipment to insure proper heat, space, ventilation, ample feeding space, and sanitation is of great importance in brooding poults successfully. A practical brooding unit under most conditions is 150 poults.



The several million broilers and fryers raised in Maryland each year consume several hundred thousand tons of feed annually. With the right kind of stock kept, under satisfactory conditions of production, 3-pound fryers are grown on less than 10 pounds of feed.

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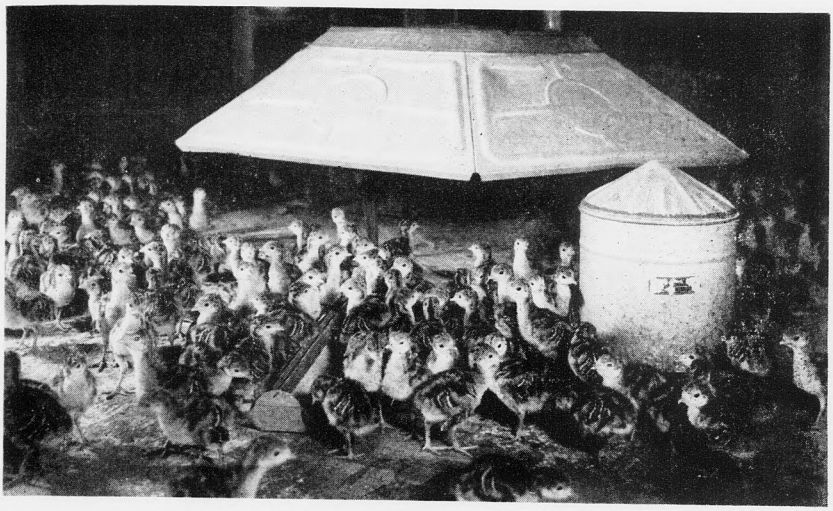

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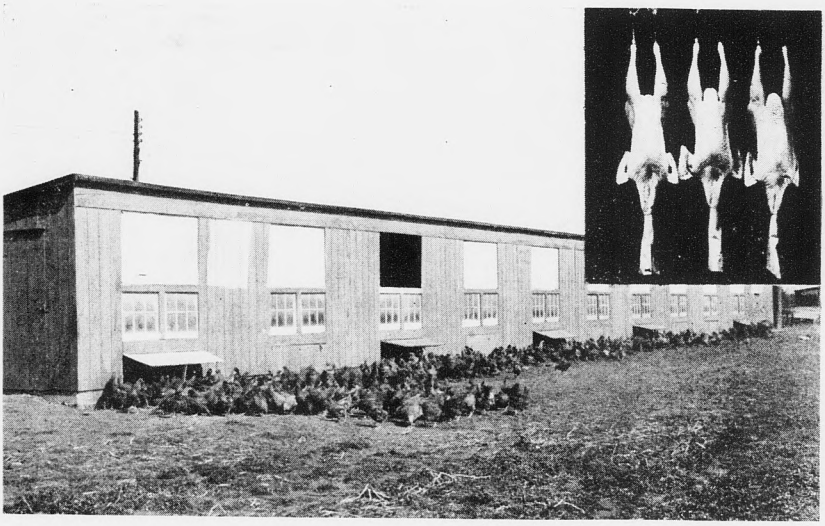

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Backed by 37 years of careful selecting and breeding. Officially blood-tested by the stained antigen method. Five most popular breeds—Single Comb White Leghorn, Rhode Island Red, Barred Plymouth Rock, New Hampshire Red and Red-Rock Cross.

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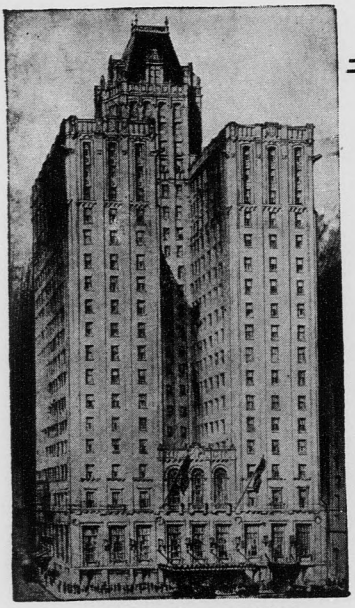

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The **LORD BALTIMORE** *Hotel*

BALTIMORE, MARYLAND

How Fast Do Your Chickens Grow?

Since most flocks of chickens, except exclusive broiler flocks, are raised primarily for the crop of pullets that are to replace worn out laying hens, it is interesting to compare the rates of growth of the cockerels and pullets particularly to learn when the cockerels reach marketable size as meat birds. The cockerels could be sold then and the pullets given more room for developing into good layers. The data below give the approximate average weight in pounds per bird of cockerels and pullets in White Leghorns and general-purpose breeds, respectively, from hatching time to the end of each two-week period up to the end of the twenty-fourth week. The data were compiled from results secured at various experiment stations and are merely intended to serve as an index of weights of males and females that might be expected to be attained in the average flock. It must be kept in mind that rate of growth is influenced to a considerable extent by at least four factors: (1) the inherent average size of the birds of a particular strain of any breed or variety; (2) the amount of feed consumed from day to day, which is influenced to some extent by the kind of diet; (3) the protein content of the diet; (4) methods of management, especially as to whether the birds are reared on range or are kept in confinement on the floor of the house or in batteries.

Approximate Average Weight In Pounds Per Male and Female
White Leghorn and General-Purpose Breed Chickens At Two-Week Intervals
(M. A. Jull, 1941)

Age In	White Leghorns		General-Purpose Breeds	
Weeks	Males	Females	Males	Females
0	.09	.09	.09	.09
2	.22	.20	.24	.21
4	.49	.40	.57	.49
6	.85	.71	1.18	.91
8	1.32	1.19	1.88	1.46
10	1.86	1.48	2.32	1.81
12	2.28	1.78	2.96	2.32
14	2.73	2.09	3.58	2.68
16	3.14	2.42	4.13	3.12
18	3.55	2.75	4.72	3.55
20	3.97	3.04	5.33	3.99
22	4.36	3.32	5.84	4.45
24	4.64	3.59	6.22	4.92

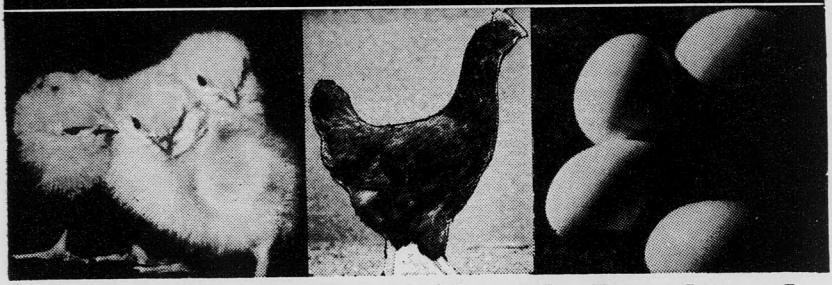
Very hot weather tends to retard the rate of growth in chickens. Early-hatched chickens nearly aways grow faster than late-hatched chickens.

If you have good stock and feed and manage it well, it should grow as fast as indicated in the above table.

MORLEY A. JULL
University of Maryland

HUBBARD'S NEW HAMPSHIRES

"Profit-bred" through Balanced Breeding



They live! Grow fast! Produce!

Two generations of Hubbards have contributed their time and energy in building this profit-bred strain. It has been accomplished through ceaseless trapnesting, pedigree breeding and progeny testing—through an 8-point balanced breeding program—through good management and careful selection year after year.

Today, Hubbard Farms have had officially blood-tested and banded 20,255 breeding birds—the largest breeding flock of New Hampshires in the world. 1500 birds are trapnested under U. S. Record of Performance Supervision.

Non-profitable characteristics have been bred out—money-making features bred in. At no time has there been an attempt to build one quality at the expense of another. As a result, Hubbard chicks inherit generations of proved blood. They are strong, big-bodied, officially Pullorum passed. They live, grow fast, mature early, become excellent layers and have the stamina to keep on laying.

With every Hubbard chick you have a 30-day full satisfaction guarantee. Sexed chicks and Cross Bred New Hampshire-Rocks also available. Hatches every week of the year. Our catalog gives you a full description of our farms and our breeding program. We invite you to write for a copy.

Hubbard Farms

Branch Hatchery, Lancaster, Pa.
Breeding Farm, Walpole, N. H.

BOX 25 WALPOLE, N. H.

Vitamins Required By Chickens

VITAMIN	IMPORTANT FUNCTIONS	DEFICIENCY SYMPTOMS
A (anti-ophthalmic)	Preserves health of eyes, nervous tissue and lining of respiratory organs. Promotes growth.	Retarded growth. Nutritional roup. Bleached beak and shanks. Kidney and nerve degeneration. Staggering gait.
B_1 (thiamin)	Maintains appetite. Preserves health of nervous tissue. Prevents polyneuritis.	Retarded growth. Emaciation. Retraction of head.
B_6	Maintains appetite. Promotes growth. Prevents convulsions.	Retarded growth. Convulsions.
D (anti-rachitic)	Utilization of calcium and phosphorus. Formation of bone and egg shell.	Retarded growth. Rickets. Soft-shelled eggs. Decreased egg production and hatchability.
E (anti-sterility)	Maintenance of normal brain structure and preserves health of reproductive organs.	Crazy chick disease (nutritional encephalomalacia). Loss of fertility in males. Decreased hatchability.
H	Promotes growth.	Incrustations at corners of mouth and on bottom of feet.
K	Enables blood to clot normally.	Hemorrhages.
Riboflavin	Promotes growth. Increases hatchability. Preserves health of peripheral nerves.	Retarded growth. Decreased hatchability. "Curled-toe" paralysis.
Pantothenic Acid (anti-dermatosis)	Preserves healthy skin.	Incrustations at corners of mouth and on bottom of feet.
Anti-gizzard Erosion Factor	Preserves normal health of lining of gizzard.	Erosions or ulcers on lining of gizzard.
Choline	Aids in preventing perosis. Important in fat metabolism. Necessary for transmission of nerve impulses.	Perosis. Failure of growth. Decreased egg production.

Try a Fall-Hatched Brood

A brood of chicks hatched in October or early November will increase flock returns by providing good egg production in the summer and early fall the following year and will enable you to utilize your brooding houses and equipment as well as your laying houses more efficiently.

How Poultrymen Can Help In National Defense

Since Germany, Japan, Italy and other countries, at the behest of Germany, have declared war on the United States, this country is faced with the most serious situation it has ever encountered.

An abundant supply of food is of the utmost importance in winning the war. Eggs constitute a very important article of the diet for all humans and are particularly important in times of stress and strain. Increased egg production is necessary in order to provide enough eggs for an army of five or six million men plus other millions for home defense. In addition, the U. S. Government hopes to ship over 500,000,000 dozen eggs to Great Britain in 1942 to enable that country to carry on the fight against the common enemy.

Every poultry producer is under a distinct obligation to do his "bit."

Increased egg production can be secured through better birds, better flock management, and better feed. Better laying stock comes first because good management and the best of feeds will not make poorly bred lay many eggs. Good management comes second because there are so many factors which if neglected will lower egg production and increase mortality. Good feed is very important, of course, but can easily be provided by securing any of the reputable brands on the market or by mixing good quality mixtures at home.

1. Get at least one dozen more eggs from every hen.
2. Keep the laying house sanitary and dry.
3. Feed fresh mash every 2 or 3 days in self-feeding hoppers.
4. Feed approximately equal parts of mash and "scratch."
5. Be sure that plenty of fresh water is always available.
6. Broody hens should be "broken up" as soon as discovered.
7. Cull the flock thoroughly every month in the year.
8. Keep up egg production by keeping up body weight and feed consumption.
9. Clean the droppings board regularly.
10. Keep the house well ventilated but free of drafts.
11. Raise the pullets in summer shelters on clean range.
12. Do not allow chickens and turkeys to run together.
13. Be on the "alert" at all times if you want your flock to do your "bit" for your country.

Order Your Chicks Early

In order to help out in the defense program, order your chicks early in the season. Pullets should start laying by September. Be sure that the hatchery from which you purchase chicks is carrying on breeding and pullorum-testing work under official state supervision. Chicks that are not over 36 hours in transit usually do better than chicks much longer in transit.

Opportunities for Increasing Returns

There are many opportunities for increasing returns in the poultry industry if Marylanders are sufficiently mentally alert and physically ambitious enough to put them into effect.

Hatchery Operators

As part of the defense program to put the Maryland poultry industry on a sounder basis, every hatchery operator should cooperate fully with his flock owners in an attempt to produce better hatching eggs and better chicks that will grow into better fleshed broilers and more profitable layers. Every hatchery operator should be cooperating in poultry improvement work, including breeding and pullorum testing. Every hatchery operator should hold one or two meetings every year with his flock owners. An increase of 5 per cent. in the hatchability of eggs set in incubators would increase returns by over $125,000 annually.

Broiler Producers

More rapid growing and feathering strains of chickens that utilize their feed more efficiently would reduce the broiler producers' feed bills by over $50,000 annually. Sanitation and less overcrowding would increase returns by another $50,000 annually. The broiler industry has grown rapidly in the last few years, from 12 to 15 million broilers and fryers having been produced commercially in 1941. If Maryland broilers and fryers are to hold their place on the New York and other eastern markets, the time has come for the packers to adopt a better and more thorough system of grading.

Market Egg Producers

In Maryland the average egg production per bird is estimated to be 110 eggs whereas in several other states it is over 150 eggs per bird. An increase of 10 eggs per bird per year in Maryland would yield a pot of gold amounting to $500,000 annually over and above what producers now receive. Maryland needs better bred stock.

Market egg producers in several northeastern states obtain an average of 7 cents per dozen more for their market eggs than Maryland producers. If Maryland producers improved the quality of their eggs and obtained 1 cent more per dozen they would receive $250,000 more egg income every year. Maryland producers should take better care of their summer eggs and do everything possible to market nothing but superior quality eggs.

Turkey Growers

Maryland turkey growers could increase their returns by several thousand dollars by raising a more efficient type of turkey and by marketing most of their birds through cooperative dressing plants.

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Write for Prices

Amounts of Vitamin-D Oils to Add to Mashes

Adding cod liver or fish oil, as a source of vitamin D, to home-grown mixtures is sometimes quite a problem for flock owners. The oils are sometimes fortified with respect to their vitamin content in which case much less oil is necessary than when the oil is not fortified. The label on the container should specify the number of A. O. A. C. chick units per gram of oil and only those oils should be purchased which have been biologically tested. Straight cod liver oil contains about 45,000 units of vitamin D per pound. One pound contains 454 grams and one pint weighs 0.9 pounds. The oil may be mixed with a small amount of bran or cornmeal, which is then mixed with the rest of the mash. The following table gives the amount of oil to be added to the mash according to the potency of the oil.

Amounts of Fish Oil Added Per 100 Pounds and Per Ton of Mash According to the Potency or Number of A. O. A. C. Chick Units Of Vitamin D Per Gram of Oil

(Pennsylvania Experiment Station)

Number of A. O. A. C. chick units per gram of oil	NUMBER OF POUNDS OF OIL TO ADD TO MASH MIXTURE			
	When mash only is fed to growing chickens		When equal parts mash and scratch are fed to growing chickens, and when mash only is fed to laying and breeding stock	
	Per 100 lbs.	Per ton	Per 100 lbs.	Per ton
85	½ lb.	10 lbs.	1 lb.*	20 lbs.*
175	¼ lb.	5 lbs.	½ lb.*	10 lbs.*
200	1/5 lb.	4 lbs.	2/5 lb.*	8 lbs.*
400	1/10 lb.	2 lbs.	1/5 lb.*	4 lbs.*
800	1/20 lb.	1 lb.	1/10 lb.*	2 lbs.*

* When equal parts mash and scratch are fed to laying hens and breeding stock these amounts should be doubled.

For growing chickens reared on range where they have access to an abundance of sunshine, fish oils may be omitted from the diet after about the eighth week.

Provide Plenty of Room for Growing Chickens

From 1 to 4 weeks allow ½ sq. ft. per chicken
From 5 to 8 weeks allow 1 sq. ft. per chicken
From 9 to 12 weeks allow 1½ sq. ft. per chicken
From 12 to 16 weeks allow 2 sq. ft. per chicken

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National Egg & Poultry Department

The
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Pounds of Feed Per Pound of Poultry Meat

Average number of pounds of feed required per pound live body weight during successive periods in relation to the average number of pounds of feed consumed per bird and the average live body weight per bird, both sexes in approximately equal numbers, reared on range.

(M. A. Jull, 1941)

	White Leghorns			General Purpose Breeds		
WEEKS	Average weight per bird in lbs	Average No. lbs. feed consumed per bird	Average No. lbs. feed per lb. live weight	Average weight per bird in lbs.	Average No. lbs. feed consumed per bird	Average No. lbs. feed per lb. live weight
4	0.44	1.25	2.86	0.53	1.26	2.38
8	1.20	3.80	3.17	1.67	4.79	2.80
12	2.03	7.56	3.73	2.64	8.79	3.26
16	2.78	12.37	4.45	3.62	13.62	3.76
20	3.50	17.82	5.09	4.66	20.36	4.37
24	4.12	23.56	5.72	5.57	28.48	5.11

It should be pointed out that the data given in the table are compilations of observations pertaining to flocks of chickens reared on range, for the most part. It is well known that the amount of grain consumed by chickens grown on grass or other good range is somewhat less than in the case of chickens kept in strict confinement.

To raise 100 chickens on range, with the sexes in equal proportions, would require approximately the following pounds of feed in round numbers:

	White Leghorns	General-Purpose Breeds
To 4 Weeks	110—120	115—135
To 8 Weeks	370—410	450—510
To 12 Weeks	780—840	830—930
To 16 Weeks	1150—1280	1290—1430
To 20 Weeks	1650—1900	1900—2150
To 24 Weeks	2200—2500	2700—3000

The amount of feed required per 100 birds of any particular strain depends upon the breeding of the strain and whether the birds are reared in confinement or on range, as well as on the particular method of feeding practiced.

Support the Fresh Egg Law

Market egg producers can best support the fresh egg law by sending to market only those eggs that will grade as "fresh" under the law. Help to keep the law on the statutes.

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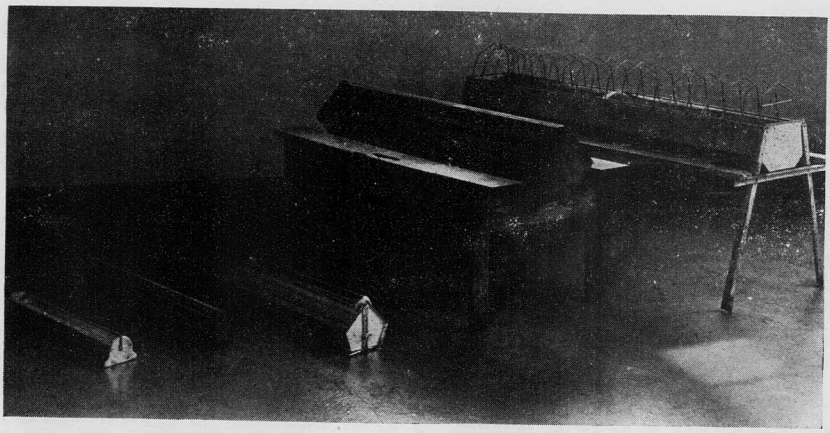
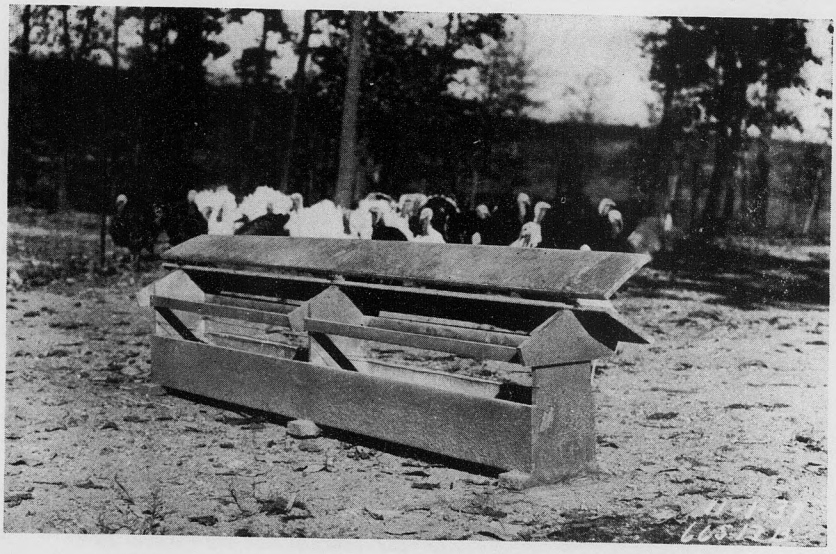


Feed hoppers should be so built as to avoid wastage of feed, make the feed readily accessible to chickens, but keep them out of the hoppers to avoid contaminating the feed. For very young chickens, one foot of a double-side feeding hopper should be available for every 20 chickens. As the chickens grow, more feeding space should be provided. Laying hens require one foot of a double-side feeding hopper for every 6 hens. (Photo by U. S. D. A.)



A satisfactory, simple feeder for either breeding turkeys or growing birds on range. The height can be raised or lowered as desired. (Photo from U. S. D. A.)

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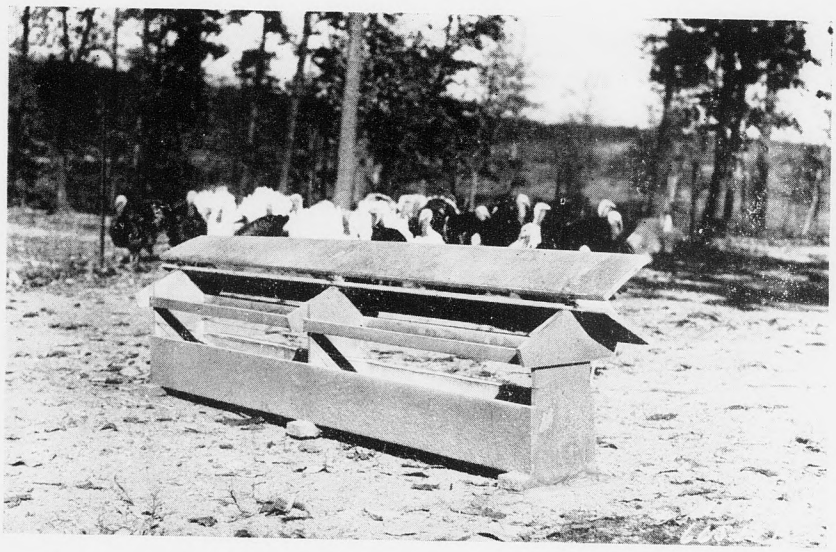

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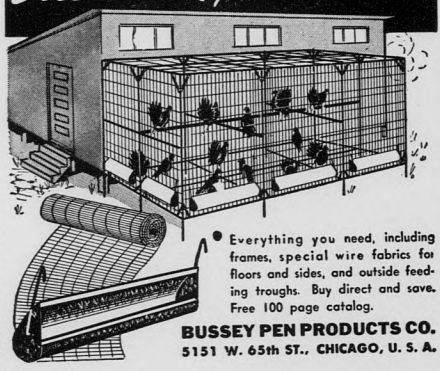

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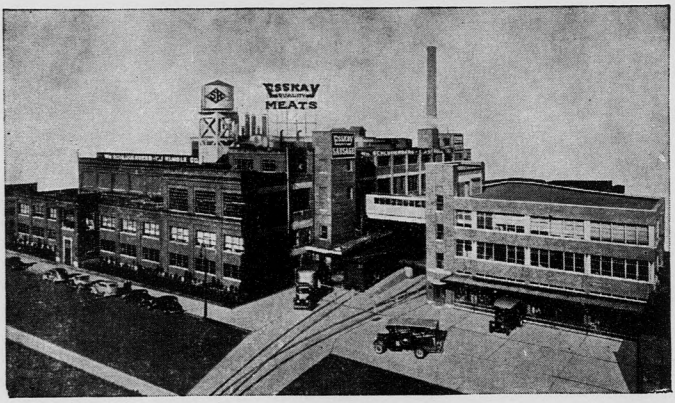

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Maryland Needs Better Laying Stock

According to the United States Department of Agriculture the average egg production of laying stock in Maryland is about 110 eggs per bird per year. Now a flock should average about 150 eggs per bird in order to give the flock owner a good labor income above the costs of feed and other items involved in the cost of producing eggs.

The four factors that determine for the most part the number of eggs a bird lays are: (1) sexual maturity or age in days that laying commences; (2) rate of laying; (3) freedom from broodiness, especially in general-purpose breeds; (4) persistence of production.

Leghorns should commence laying at about 160 days of age and general-purpose pullets at about 180 days of age. The following data show the relationship between the age in days that laying commenced and first-year egg production:

Age in days laying commenced	180	230	280
Average first-year egg production	208	182	152

In order to make a good first-year record the pullets must lay at a good rate throughout the year. The following data show the importance of this factor:

Per cent production	37	57	77
Average first-year egg production	161	200	227

Relative absence of broodiness is very important, especially in the case of general-purpose breeds. The following data for Rhode Island Reds show the importance of nonbroodiness in a strain bred for high egg production:

Average number of eggs laid by birds going broody	180
Average number of eggs laid by nonbroody birds	205

Persistence of production is probably the most important factor in distinguishing good producers from poor ones. The following data bring out this point very clearly:

Month birds stopped laying	Aug.	Sept.	Oct.	Nov.
Average first-year egg production	123	175	205	232

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The Value of Progeny Testing In Building Up Egg Production

By Morley A. Jull, *University of Maryland*

The selection of breeding stock on the basis of egg production records has proved unreliable. Selection based on pedigree is superior to selection based on individual performance but also has distinct limitations. Selection on the progeny-test basis has been demonstrated to be the most reliable procedure in developing efficiency in egg production. One example will serve to emphasize the importance of selecting breeders on the basis of family performance. Data collected by L. W. Taylor and I. M. Lerner, California Experiment Station, show the relationship between the average egg production of daughters based on the average egg production of different groups of dams and their full-sisters.

Average Egg Production Of Dams and Their Full Sisters	*Average Egg Production Of Daughters*
109	139
192	205
201	213
230	215

The family method of selecting breeding stock is one phase of applying the progeny test in breeding for increased egg production. Poultry breeders everywhere would be well advised to give much more attention to the progeny test and much less attention to individual performance in selecting breeding stock.

Farmers should exercise as much care in deciding from whom to buy chicks as the kind of chicks to buy. Since the importance of progeny testing in developing high laying strains has been mentioned, it is possible to give an outstanding illustration of the value of chicks from progeny-tested stock.

Many of the progressive poultry breeders are carrying on their poultry breeding operations according to the provisions of the National Poultry Improvement Plan. Pullets entered in R. O. P. or Record of Performance under the Plan are called U. S. R. O. P. candidates. In 1940 the hen-housed average egg production of 29,000 U. S. R. O. P. candidates was 170 eggs. The average egg production of all laying hens in the country in 1940 was 101 eggs.

Under the provisions of the National Poultry Improvement Plan recognition is given to males that have proved by progeny testing to be sires of superior breeding worth. The average egg production of 10,000 daughters of progeny-tested sires was 203 eggs. Those are the kind of pullets that will make good profits in egg production even if feed prices are relatively high. It only takes a few extra eggs laid by well bred, efficient pullets to more than pay the additional price for chicks of good quality over chicks of average quality.

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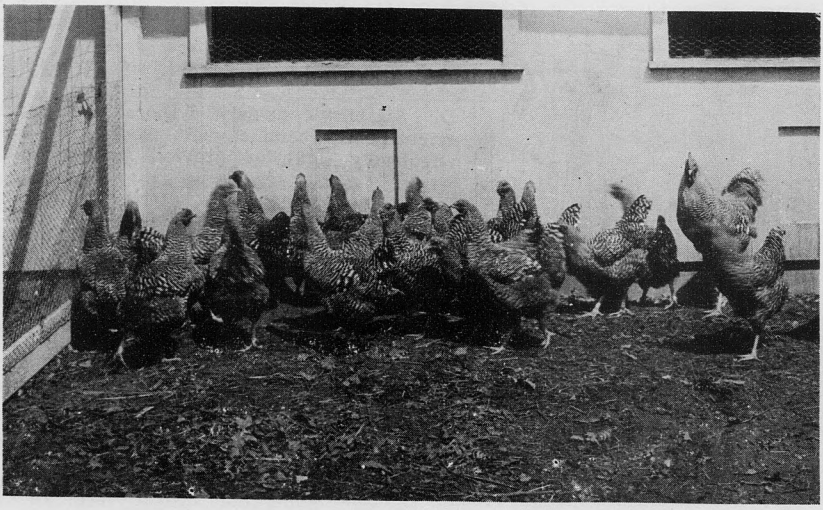
Pounds of Feed Per Dozen Eggs

The amount of feed consumed by laying hens represents about one-half of the total costs of producing eggs. Laying hens vary a great deal with respect to the amount of feed consumed, depending upon the size of the bird and the number of eggs laid. The following estimates by D. T. C. Byerly, formerly of the University of Maryland Agricultural Experiment Station, emphasize the importance of obtaining good egg production in cutting down feed costs.

Body Weight In Pounds	Egg Production Per Bird	Pounds Feed Consumed Per Bird	Pounds of Feed Consumed Per Dozen Eggs Laid
3	200	75.2	4.5
5	200	93.7	5.6
7	200	109.8	6.6
3	100	61.0	7.3
5	100	79.5	9.3
7	100	95.6	11.5



Barred Plymouth Rock pullets at the beginning of the laying season. Their ration should contain about 16 per cent protein and should be properly balanced with vitamins and minerals. General-purpose pullets, if kept in confinement, consume about 90 pounds of feed annually, depending upon their size and number of eggs produced. (Photo by U.S.D.A.)

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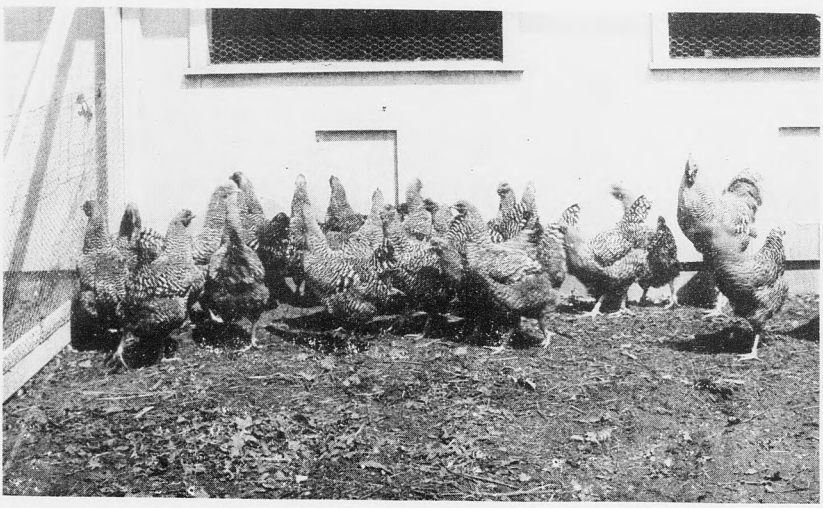
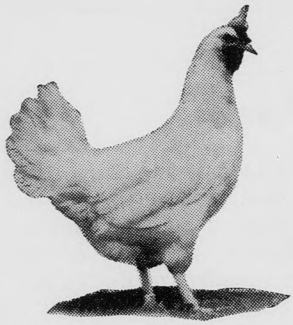


Barred Plymouth Rock pullets at the beginning of the laying season. Their ration should contain about 16 per cent protein and should be properly balanced with vitamins and minerals. General-purpose pullets, if kept in confinement, consume about 90 pounds of feed annually, depending upon their size and number of eggs produced. (Photo by U.S.D.A.)



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- PHEN-O-SAL—(a double duty drinking water medicine that works two ways!)
- CAN-PHO-SAL—(an Inhalant spray for colds, etc.)
- ROTA-CAPS—Individual wormer preferred by poultry raisers 2 to 1.)
- AVI-TON—(an effective flock roundwormer—gets cecal worms, too!)
- AVI-TAB—(a medicinal concentrate for fortifying the feed.)
- RAKOS — (first-aid for the dreaded Coccidiosis.)
- NIC-SAL—(Lice-destroying roost paint easy to use.)
- PAR-O-SAN—(highly effective disinfectant and litter spray for coccidia and worm eggs.

(and many other products not listed)

NEED FOR POULTRY MEDICATION

Poultry raisers lose thousands of dollars every year through **avoidable** disease loss! In poultry raising, too, "An ounce of prevention is worth a pound of cure", and it's so easy and inexpensive. Get helpful free poultry health literature from **your** local dealer who displays the emblem above, or write to the nearest address shown below.

DR. SALSBURY'S *LABORATORIES*

A NATION-WIDE POULTRY HEALTH SERVICE

- Charles City, Iowa
- Kansas City, Missouri
- Columbus, Ohio
- Ft. Worth, Texas

Feed Requirements of Layers

Many poultrymen, especially beginners, want to know exactly how much feed should be given daily to a flock containing a certain number of birds. It is impossible to say exactly how much feed should be given a particular flock every day because there are so many factors involved. From the time the pullets are placed in the laying house they require more feed daily until they are about 10 months old because pullets continue growing up to that time. As the rate of egg production increases during the fall and winter months, the amount of feed required increases. Birds that are confined to the laying house consume more grain than birds that have access to succulent pasture. The kind of a diet fed may affect feed consumption. Flocks that are culled regularly to maintain efficiency of production and flocks that suffer mortality require less feed as culling and mortality increase. Because of all of these factors it is easy to see why it is impossible to state exactly how much feed should be given a flock daily.

On the other hand, every flock owner should know the approximate amount of feed required by his or her flock. The following table gives the approximate amounts of feed required daily by 100 birds according to the body weight of the birds and per cent daily production or the number of eggs laid daily per 100 birds.

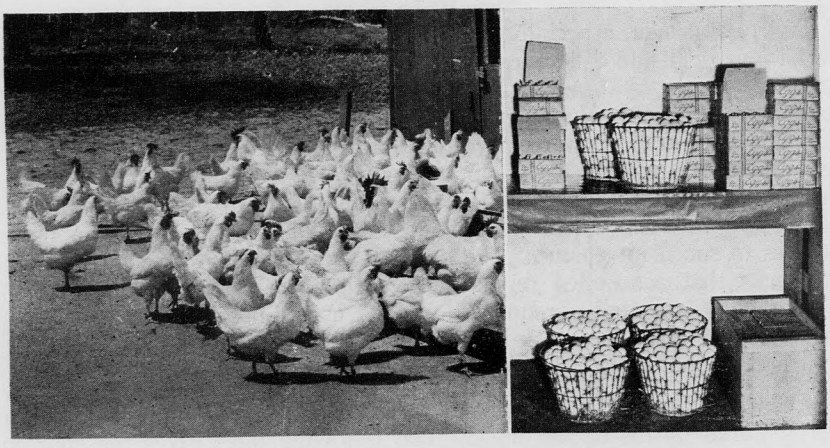
Approximate Number of Pounds of Feed Required Daily Per 100 Birds According to Size and Number of Eggs Laid Per Day Per 100 Birds

(T. C. Byerly, 1941)

Per Cent Production	Body Weight In Pounds				
	3	4	5	6	7
	Pounds Feed Required Per 100 Birds Per Day				
0	12.8	15.5	17.9	20.2	22.3
10	14.2	16.9	19.3	21.6	23.7
20	15.6	18.3	20.7	23.0	25.1
30	17.1	19.8	22.2	24.5	26.6
40	18.5	21.2	23.6	25.9	28.0
50	19.9	22.6	25.0	27.3	29.4
60	21.3	24.0	26.4	28.7	30.8
70	22.7	25.4	27.8	30.1	32.2
80	24.2	26.9	29.3	31.6	33.7
90	25.6	28.3	30.7	33.0	35.1
100	27.0	29.7	32.1	34.4	36.5

This table is merely intended to serve as a guide to flock owners in suggesting the approximate amounts of feed required daily per 100 layers. The successful feeder should use his own judgment as determined by the condition of the birds.

There are times, for instance, when egg production tends to drop off but feed consumption should be increased to prevent further declines and to prevent the birds from losing weight.



A 4-pound Leghorn hen laying 100 eggs a year consumes on the average about 8 pounds of feed per dozen eggs laid, whereas a 4-pound Leghorn hen laying 200 eggs a year consumes on the average about 5 pounds of feed per dozen eggs laid. Well-balanced rations are essential to profitable egg production.

Labor Income In Relation To Egg Production

The number of eggs laid by a flock is of very great importance in securing a good labor income from the flock. Prof. K. W. Baker of the Delaware Extension Service divided 39 Delaware flocks into three groups, according to average egg production per bird, and determined the average labor income per hen for each of the three groups of layers.

Average Egg Production Per Bird	Average Labor Income Per Bird
Under 160	$1.36
160 to 199	1.98
Over 199	3.41

These results demonstrate the importance of having well bred stock. With existing relatively high prices of feed, it is more important than ever to have well bred stock. The laying stock must be efficient in converting feed into eggs if the flock owner is to make money on his flock. Egg prices are relatively good, so that every flock owner should be making money if his flock will lay 60 per cent or better during the winter months.

Egg Weight in Relation to Body Weight

Good sized eggs are an asset on any market. Small eggs always have to be sold at a discount. Many poultrymen often fail to realize that small birds usually lay smaller eggs than their larger sized sisters in any flock. Professors Funk and Kempster of the Missouri Experiment Station have shown that in a flock of White Plymouth Rocks the size of egg laid was definitely related to the size of the bird.

Average body weight in pounds	4	5	6	7
Average egg weight in ounces, Oct. to June	1.86	1.95	2.00	2.07

Since the October to June egg weight represents the average annual egg weight and since the market standard is a 2 ounce egg or 24 ounces per dozen, it is evident that White Plymouth Rock females should weigh about 6 pounds. The same is true of other general-purpose breeds.

Plenty of hopper space should be available for the layers. The scratch grain as well as the mash is often fed in self-feeding hoppers. (Photo by U.S.D.A.)

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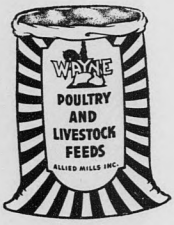

Through the U. S. D. A. Uncle Sam is asking for increased Production to help win the "Battle of Food".

WAYNE REPLIES: "Animals and birds fed Wayne "I-Q" Feeds have an opportunity to produce in line with the breeding back of them. Laying hens have produced 50% more eggs on the "I-Q" Program. Broilers showed a 25% greater growth when given "I-Q" feed as compared to those on the same formula made from untested ingredients. Turkeys have produced 25% more meat in the same time when given the advantages of "I-Q". Help yourself and Uncle Sam—FRED WAYNE."

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WAYNE

Back-Yard Or Small Farm Poultry Project

PROF. GEO. D. QUIGLEY, *University of Maryland*

Many farm people with limited acreage available for poultry and many urban people wish to keep only enough chickens to supply the home table with eggs and poultry meat. The following project is designed for this purpose. The project outline has been used by many vocational agricultural teachers in their poultry courses with F. F. A. boys.

Size of Family

Five to six persons.

Aims

To supply the family with one egg per day per person, plus sufficient chicken to provide about 2 chicken meals in three weeks' time.

Economy

The economy of this program is based upon the fact that chickens are known to be economical converters of feed into healthful, nutritious, appetizing foods for human use.

Required Volume

1. An average number of 18 layers, producing 10 dozen eggs each would be needed. To produce this flock about 25 layers would be raised or provided for.

Number of pullets raised per year	35
Mortality, 15%	4
Remaining	21
Table use (fowl) during laying year	6
Leaving fowl for killing at end of laying year	15

Feed Requirea

1. 54 chicks (60-6)	1 to 10 weeks	325.1 lbs.
50 "	10 to 11 "	55.0 "
46 "	11 to 12 "	55.2 "
43 "	12 to 14 "	105.4 "
40 "	14 to 15 "	52.0 "
37 "	15 to 16 "	51.8 "
34 "	16 to 18 "	105.4 "
32 "	18 to 19 "	51.2 "
30 "	20 to 22 "	108.0 "
28 "	22 to 23 "	47.6 "
26 "	23 to 24 "	46.8 "
		1,003.5 "
2. Layers, average number of 18, each consuming 90# feed per bird per year		1,620.0 "
Total feed required		2,623.5 "

Returns

1. Eggs ..... 230 Doz.*

2. Chickens — Broilers & Fryers & Roasters

8	Broilers	2 # live	16
3	"	2¼ # "	6.25
3	"	2.6 # "	7.8
3	"	2.8 # "	8.40
3	Fryers	2.9 # "	8.70
2	"	3.3 # "	6.6
2	"	3.4 # "	6.8
2	"	4.0 # "	8.0
2	"	4.2 # "	8.4
1	Roaster	5.0 # "	5.0
Total lbs.			81.95

*Some production will be obtained from birds which will later die, also from the 6 to be used for table use.

3. Fowl
Total of 21 during year, commencing in July or August and continuing to broiler season in following spring. Average Wt. 6 lbs. x 21 ..... 126.

Total Poultry meat 207.95

Houses

1. *Laying*
One 10 x 10 laying house, plans for which may be secured from the University of Maryland Poultry Department, College Park, Md. Chickens given free range or confined to large roomy yard.

2. *Brooding*
Chicks to be hatched to the number of 60, preferably during the month of April or May, depending upon equipment available. The most difficult problem in small flock management is that of flock replacement. There are several choices depending upon circumstances:

A) Use of hens for incubating and brooding. This would involve purchasing of hatching eggs, or keeping of a rooster for breeding purposes, preferably the former. Figuring upon a 60% hatch, a total of 6 brooding hens would be needed, giving 16 eggs each. If two hens were set at one time, all chicks hatched could be given to one mother (at hatching time) thus saving considerable cost.

B) Where electricity is available, the simplest, safest, cheapest method of brooding is to use the heat from an ordinary 40 or 60 watt electric light bulb, carefully conserving all heat produced by heavy insulation. This bulb can be turned off when not necessary thus conserving fuel. Estimated fuel cost for rearing one brood by this method would be about $1.00 for 3 to 4 weeks.

C) During the late spring months of May and June, chicks may be reared by brooding at night with a jug of hot water, or by covering at night with woolen cloths, or by moving at night to a warm room. Such methods are somewhat laborious. Feather boards, requiring no supplementary heat may be bought for about $4.50

3. Where electricity is not available, small oil stoves or coal burners may be used, but they are frequently dangerous.
4. Well feathered, started chicks, 3 to 4 weeks of age can frequently be purchased from hatcheries for less than the cost of brooding at home. These chicks, if carefully handled, may frequently be brooded in tight quarters without supplementary heat. They should be placed in clean, disinfected quarters, and allowed to range upon clean land.

Husbandry Difficulties

The main husbandry difficulties of a project of this type will probably be:

1. Obtaining good quality stock for the start.
2. Mites.
3. Rats and predatory animals.

All can be corrected with comparative ease by good management and fair equipment.

Breeds

A good laying strain of Barred Plymouth Rocks, R. I. Reds, New Hampshires, Wyandottes, or White Rocks would be recommended for this work.

Feeds

1. Starting mash, growing mash and laying mash, fed to baby chicks, growing stock and layers, respectively.
2. Adult scratch grain, whole corn and whole wheat equal portions by weight fed to layers.
3. Chick or intermediate scratch, of whole wheat and cracked corn in season to chicks commencing at two weeks of age.
4. Oyster shell for layers.

Developing a Better Market Type of Turkey

WADE RICE, *University of Maryland*

Marked progress has been made by leading breeders in improving the market carcass and early maturing qualities of practically all varieties of turkeys in recent years. As a result, the "leggy," long necked, "hatchet breasted," slow maturing type of turkey is rapidly being replaced by improved types which exhibit moderately short legs and necks and broad, deep, well-fleshed breasts. When well finished birds of this type are properly dressed, they present a very compact carcass, which is far superior in consumer appeal to the ordinary turkey.

To provide a systematic plan for improving the market quality as well as efficiency in hatchability, viability and feed utilization of turkeys produced in Maryland, a tentative Turkey Improvement plan has been developed and adopted by the Maryland Poultry Improvement Board.

Based upon the egg production, hatching and rearing records, a single tom mated to 10 or more females must meet the following minimum requirements to qualify for Record of Merit under the Tentative U. S. and the Maryland Turkey Improvement Plans:

Eggs: 20 or more per hen and 200 or more per pen must be set during the normal hatching season. (March, April, May).

Hatch: 65% or more of all eggs set from the pen must hatch.

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R. O. P. Breeders Of

White Leghorns

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Over 200 cases U. S. Certified hatching eggs available weekly to hatcherymen, during the season, for flock improvement.

On our own farms, we breed 60,000 layers, trapnesting 4000 pullets under R. O. P. this winter, and will have 100 pens of special matings, of hens with records up to 346 eggs!

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WRITE

EGG-O-MILK COMPANY

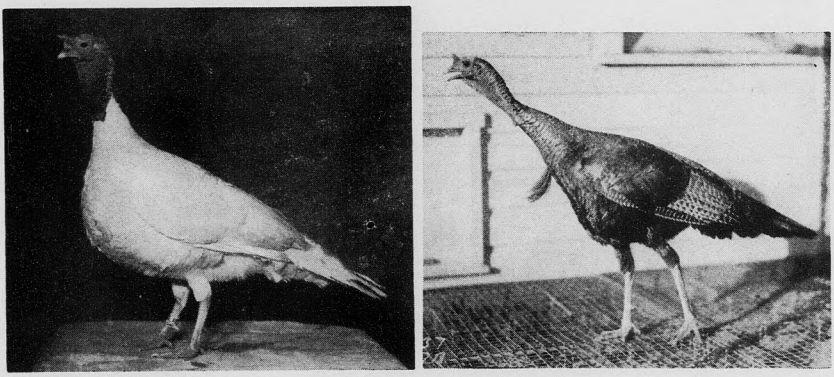
BALTIMORE, MARYLAND

Viability of Progeny: 75% of all poults hatched from each pen must be raised to market age. At least 100 turkeys from each pen must be available at the fall inspection of the State inspector.

Market Quality: At official fall inspection (prior to November 15), 60% of males and 80% of females shall be of Approved Stage, or better. (Prime carcass and good representative of variety).

The foregoing requirements are often raised by as much as 10 to 15 per cent by turkey breeders doing trapnesting and individual pedigreeing. These minimum requirements are reasonable and are being equaled or exceeded by some breeders.

For the turkey breeder who is anxious to make definite and substantial progress in improving the efficiency of his stock, selection based on performance of the progeny of his matings is indispensable.



A contrast in types. Note the shorter legs and neck, the deep, full breast and body indicating meatiness of the bird at left, in contrast to the rangy, shallow-bodied, flat-breasted bird at right. The bird at right is a wild tom. Both birds were raised in confinement and fed good rations ad libitum, which illustrates the importance of heredity in producing market turkeys. (Photos from U. S. D. A.)

Early Turkey Hatching Eggs

Maryland turkey breeders should grasp the opportunity of producing early hatching eggs for hatcheries in the northeast. The turkey breeding stock should be placed under artificial lights to stimulate early egg production. Males should be lighted beginning about January 1 and females about February 1.

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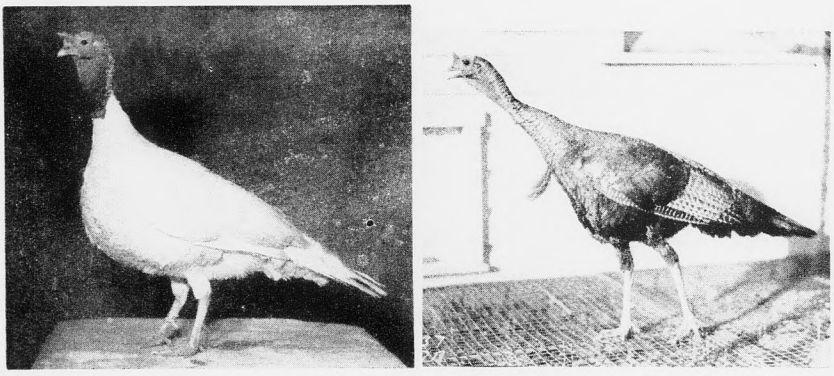

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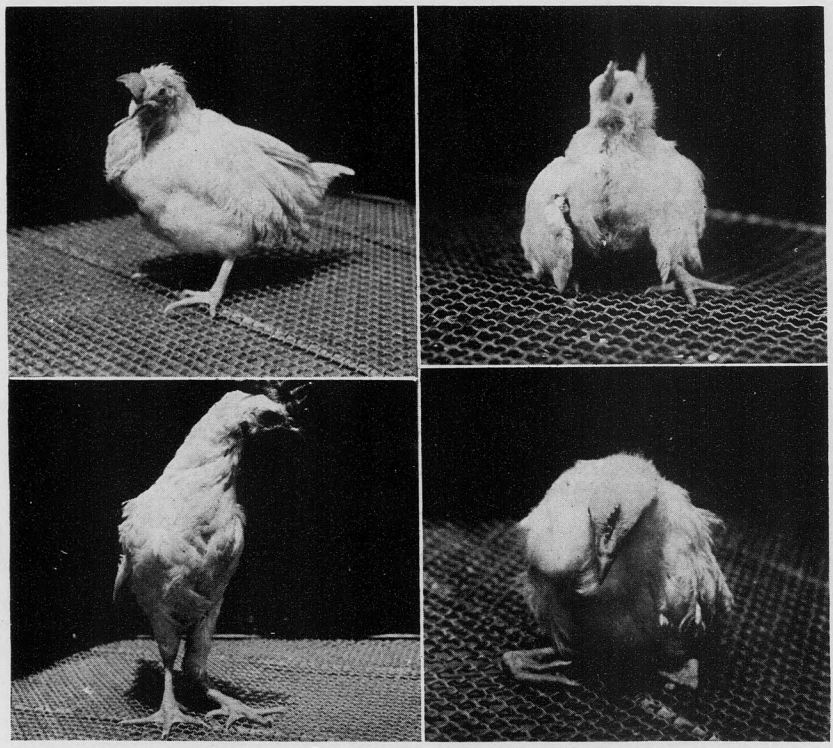
Breeding For Resistance To Pullorum Disease

The results of 8 years of breeding for resistance to pullorum disease in Rhode Island Reds have recently been reported by Dr. H. M. DeVolt, Prof. G. D. Quigley, and Dr. T. C. Byerly of the Maryland Agricultural Experiment Station. A study of susceptibility of different strains of chickens to pullorum disease showed that relatively resistant strains may be developed by selection. Pullorum-clean flocks which had not been previously exposed to the disease gave a survival, after inoculation, of only 8.7 per cent, whereas 30.8 per cent survived from flocks containing reacting birds. This was similar to 32.5 per cent found for birds from the Illinois pullorum-resistant stock. Breeding for a relatively high degree of resistance to pullorum disease would constitute a long-time problem. Under existing conditions testing all breeders is advisable and the reactors should be promptly removed from the flock.



Examples of nutritional deficiency diseases. Top left, results of vitamin A deficiency. Top right, rickets due to vitamin D deficiency. Bottom left, perosis or slipped tendon due to manganese and perhaps other deficiencies. Bottom right, curled toe paralysis due to riboflavin deficiency. (Photo by Lampman, Moore, Williams, and Bolin, Idaho Exp. Sta.)

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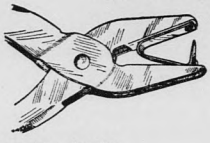

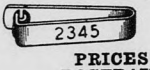

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The Revised Maryland Experiment Station Mash

Dr. H. R. Bird, *University of Maryland*

Very extensive revisions of mash formulae have been necessary during the past year because of scarcity and high prices of certain feed-stuffs. Until very recently the Maryland Experiment Station Mash has been left unchanged because of the desirability of maintaining a constant basis of comparison for experimental work. Now, however, this consideration has been pushed into the background by rising feed costs and a revision has been made. The revised mash is based on extensive experimental work and we have every reason to believe it will give as good results as the old mash and better for some purposes, namely, growth of chicks and broilers.

Like the old Station Mash, the revised formula is designed to be fed as an all-mash ration to starting chicks and broilers, with increasing amounts of grain to growing pullets, and with a grain intake approximately equal to the mash intake for laying hens. Limestone or oystershell should be supplied in hoppers to laying hens and also to growing pullets if considerable amounts of grain are fed.

The formulae of the old and revised mashes are as follows:

	Old Formula, lbs.	Revised Formula, lbs.
Ground #2 yellow corn	500	500
Fine-ground heavy oats	300	300
Wheat bran	300	300
Wheat flour middlings	300	300
Alfalfa leaf meal	100	100
Soybean oil meal	100	250
Meat and bone meal	150	100
Steam dried menhaden meal	100	100
Dried skimmilk	150	50
Butyl fermentation residue	—	50
Cod liver oil (85 D)	20	—
Vitamin A and D feeding oil (85 D)	—	20
Oyster shell flour	20	20
Steamed bone meal	—	20
Salt	10	10
Manganous sulphate tetrahydrate	¼	¼
	2050¼	2120¼

There are three brands of "butyl fermentation residue" on the market. They are sold under the names of B-Y Feed, Curbay B-G, and Paco.

At present Baltimore retail prices the cost of the old formula mash would be $3.46 per 100 lbs. and the cost of the new formula mash would be $2.69 per 100 lbs.

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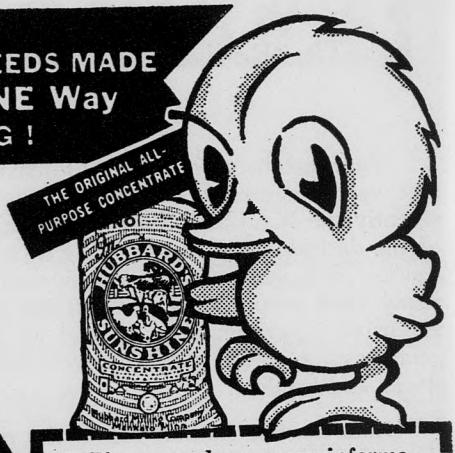

You can be assured that your local dealer who manufactures his feeds and mashes with HUBBARD'S SUNSHINE CONCENTRATE according to the HUBBARD SUNSHINE formulas has feeds that include all the essential proteins, vitamins, and minerals. You will get full value from feeds made **The HUBBARD SUNSHINE Way** because they're always FRESH. They'll add to your poultry profits.

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The Benefits of the Fresh Egg Law

LAWRENCE DOWNEY, *University of Maryland*

The two years' enforcement of the Fresh Egg Law in Maryland has brought about some marked changes in the egg marketing picture. A person traveling through the State and noticing egg advertising now as compared with that of a few years ago will note this change. No longer will they find "fresh" and "strictly fresh" eggs being offered to the consuming public at ridiculously low prices. The sincere producers and handlers of high quality eggs can feel assured that they no longer have to compete in price with the dishonest person who is offering to the public a very low quality egg, advertised as "fresh" and at a price which is below the true market value of fresh eggs.

The Department of Markets and the Poultry Department at the University of Maryand have been making a combined effort to accomplish the following objectives as set forth by all parties instrumental in having the Fresh Egg Law enacted.

(a) "To protect our market — the consumer — against fraud, adulteration and misrepresentation by dishonest producers and distributors. To make eggs sold as 'fresh' be fresh in fact."

(b) "To protect and help the honest, or would be honest, distributor."

(c) "To protect and encourage the bona-fide egg producer."

(d) "To increase the consumer demand for fresh eggs produced in Maryland."

It is felt that objectives A, B, and C have been reasonably well attained, and that although a large amount of educational work has been done by the inspectors working under the Fresh Egg Law in making their inspections, there is still a great need for further distributor and consumer education.

The value of the work done by the inspectors can probably best be described by repeating a statement from one of the leading egg dealers in Baltimore City to the effect that he can no longer sell to the retail merchant eggs as eggs, because an increasing number of his customers are demanding to know the quality of the eggs he is offering for sale. The retail merchant then buys according to the quality and price dictates of his customers. In other words, the retail grocer has to an extent become quality conscious. The next natural step is to encourage this and endeavor to bring about a corresponding degree of quality consciousness on the part of the consumer. When this objective has been attained, the poultry producers of Maryland should begin to reap the benefits of the immense amount of work they have put into the Fresh Egg Law.

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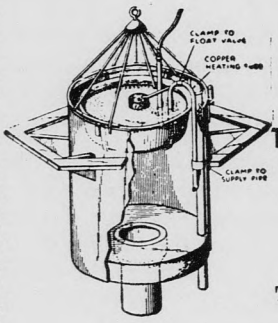

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How To Improve the Baltimore Egg Market

By L. E. E. Cron, R. F. Burdette *and* Dr. S. H. DeVault
Maryland Agricultural Experiment Station

1. Local producers should arrange their production program so as to supply the Baltimore market with a larger percentage of eggs.
2. Producers should give their eggs better care at the farm so as to put more attractive and higher quality eggs in the market. Eggs containing blood spots, meat spots, and small, cracked and dirty eggs should be used at home and only high quality clean eggs should be sent to market.
3. Producers should use greater care in packing eggs. Only clean sound packages should be used and each egg should be packed with the pointed end down.
4. Meat packers and chain stores would handle large quantities of local eggs if they could get a dependable supply of good quality eggs. Producers should provide facilities for selling more eggs to these agencies.
5. Commissionmen, wholesalers and jobbers should provide better facilities for holding eggs at their warehouses. Where refrigeration is not available, a more rapid turnover of egg stocks is desirable.
6. Eggs put into cold storage should be carefully graded and packed. Clean cases and new fillers should be used to prevent the absorption of odors. All eggs should be packed with the small end down to prevent stuck yolk and tremulous air cells.
7. Eggs held in storage 30 days or longer should be sold as storage eggs and low quality or storage eggs should not be advertised as fresh.
8. Dealer supplying retailers with eggs should candle all eggs sold to remove inedible eggs. Cracked eggs should be removed and sold separately.
9. Retailers should not hold eggs in places where the temperature is above 60° F. Most retailers should purchase eggs in smaller quantities and at more frequent intervals.
10. An educational program on egg quality should be conducted in Baltimore for the benefit of consumers and retailers.

It is up to every poultry producer in Maryland to help support the Fresh Egg Law. It has already done a lot of good in improving the Baltimore egg market and should be kept on the statutes.

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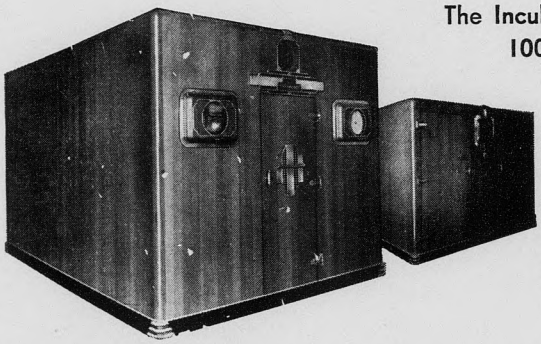

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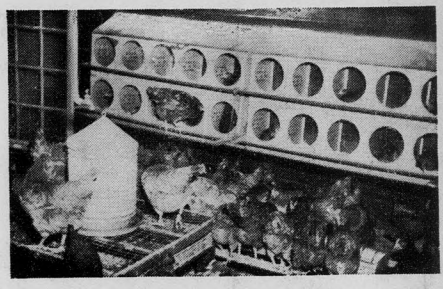

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